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American Aviation

The Independent Voice of American Aeronautics

NOVEMBER 15, 1943

Return the Airplanes

Fortnightly Review

NOW that the Air Transport Command of the Army Air Forces has cancelled the transitional pilot training contracts with the airlines, there can be no further justification for failure to return to the airlines the transport airplanes requisitioned a year and a half ago by the Army.

There are approximately sixty Douglas DC-3 standard transport planes which the Army can easily return to wartime commercial operations to eliminate some of the terrific mail-express-passenger bottlenecks existing in various parts of the country.

The Army took the airplanes because of an emergency. Pilot training was part of the emergency program. Since there is no longer an emergency, which is quite obvious or the Army would not be enabled to cancel the contracts, the Army is morally and ethically bound to return the airplanes to wartime civil use. If this is not done, then it appears obvious that there is something in the background which doesn't bear the light of day.

On December 17, 1941, President Roosevelt signed an order authorizing the Secretary of War "to take possession and assume control of any civil aviation system, or systems, or any part thereof, to the extent necessary for the successful prosecution of the war."

On April 20, 1942, the War Department announced that the facilities of the airlines would be given an active participation in the war effort. Part of that announcement read as follows: "The division of responsibility was arranged on such a basis that each airline, with its remaining equipment, will be able to provide space for air mail, passengers

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Defines Problems

A clear statement of the problems facing the aircraft manufacturing industry in its conversion from wartime to peacetime operations was given last fortnight by Carl B. Squier, vice president of Lockheed Aircraft Corp. (See page 16.)

Late Bulletins

Inland Price Revealed

Western Air Lines, seeking to buy Inland Air Lines, will pay \$2.65 a share for 137,241 shares of Inland stock (comprising 83% of stock outstanding), or a total price of \$363,688.65, it has been revealed. If WAL is successful in buying all 164,218 Inland shares, total cost will be \$435,177.70.

NEA Stock Sold

Boston & Maine Railroad and Maine Central Railroad have each sold 20,000 shares of their Northeast Airlines' stock to a person having no interest in either railroads or airlines. This reduces the railroads' holdings in NEA from 15% each to 11% each and they plan to continue with plans to dispose of additional stock.

Trend of The News

Intrastate Applications: Never before has there been such a flood of applications to state commissions for intrastate air operations. Washington sources speculate that these applications are probably being pushed directly or indirectly by surface carrier interests who want to get state sentiment stirred up against the Lea bill. If state officials can be convinced that they should control this type of traffic they could be persuaded to register strenuous objections to the bill. However, feeling is that the sudden flood of applications may aid supporters of the Lea measure. These supporters will be able to show Congressmen the danger of a disconnected air system, which, they claim, would be uneconomically unsound because investors might have their holdings wiped out if the airline carried interstate business—in which case they would be taken to court by the Civil Aeronautics Board and possibly put out of business.

Renegotiation Defied: The entire aircraft industry will watch with interest a direct challenge of the War Contract Renegotiation Act instituted last fortnight by the Lincoln Electric Co. of Cleveland in a suit in the U. S. District Court for the District of Columbia questioning its constitutionality. Lincoln asked for an injunction to prevent the Government from enforcing a claim for \$3,250,000 which a Price Adjustment Board said represented excessive profits on contracts in 1942. The U. S. Attorney General agreed to refrain from cancellation of contracts, impounding of the company's funds or the issuance of orders to the company's sub-contractors barring them from further business with Lincoln, pending the designation of a three-judge court to hear the case. It is generally agreed that the contest will be carried to the Supreme Court and final action cannot be anticipated before next summer.

To Simplify Regulations: Ever since the old Bureau of Air Commerce blossomed forth with a mass of coded civil air regulations which are complex enough to baffle even the experts, various attempts have been made to simplify the codes into some readable and practical to use. So far all the attempts have resulted in even bulkier and more legalistic rules. A brand new and promising

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velopments of economic history. Changing ways of travel have caused changing ways of living. That's why today's aircraft designers and engineers—in planning tomorrow's aircraft—are also helping to shape the post-war World.

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COWL-ACTUATING JACK TO OPERATE VENTILATORS ON THE P-38

WORM AND GEAR FOR CONTROL OF GUNS IN TURRETS ON THE B-17

GEAR ASSEMBLY FOR OPERATING LANDING GEAR ON THE AT-21

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SOLVING intricate production problems called for in the manufacture of high-precision aircraft devices is another contribution Foote Bros. Gear and Machine Corporation is making toward speeding the day of Victory.

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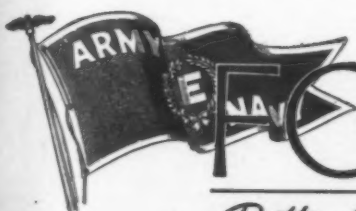
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Vol. 7, No. 12

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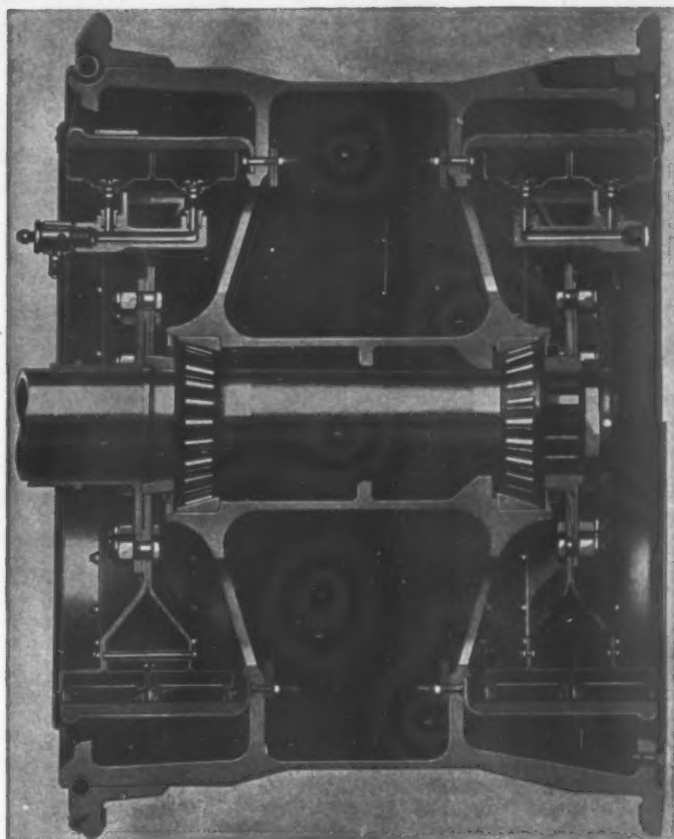
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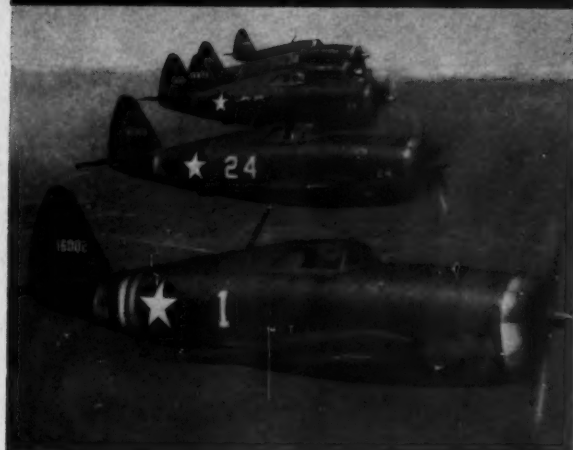
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HOSE CLAMPS

(Continued from page 1)

effort has now been launched, however, by the Safety Bureau of the Civil Aeronautics Board of which Jesse Lankford is director. His deputy, John Chamberlain, is delving into the project on authorization of the CAB. This is encouraging news to private flyers who hope some day to be able to fly with nothing more than a few "rules of the road".

Fleet Remains a Factor: When Major R. H. Fleet sold his Consolidated Aircraft interests for ten million cold cash in December, 1941, he had no intention of retiring from aviation. Not only is he a consultant, for five years, for the new company at a reputed \$60,000 a year, but insiders say Fleet will be back as head of an aircraft manufacturing company when his agreement with Consolidated ends—said agreement being to refrain from active participation in the manufacturing business for five years. This deal has three more years to run. In the meantime Fleet will take an active part in the Institute of the Aeronautical Sciences of which he has been elected president for 1944.

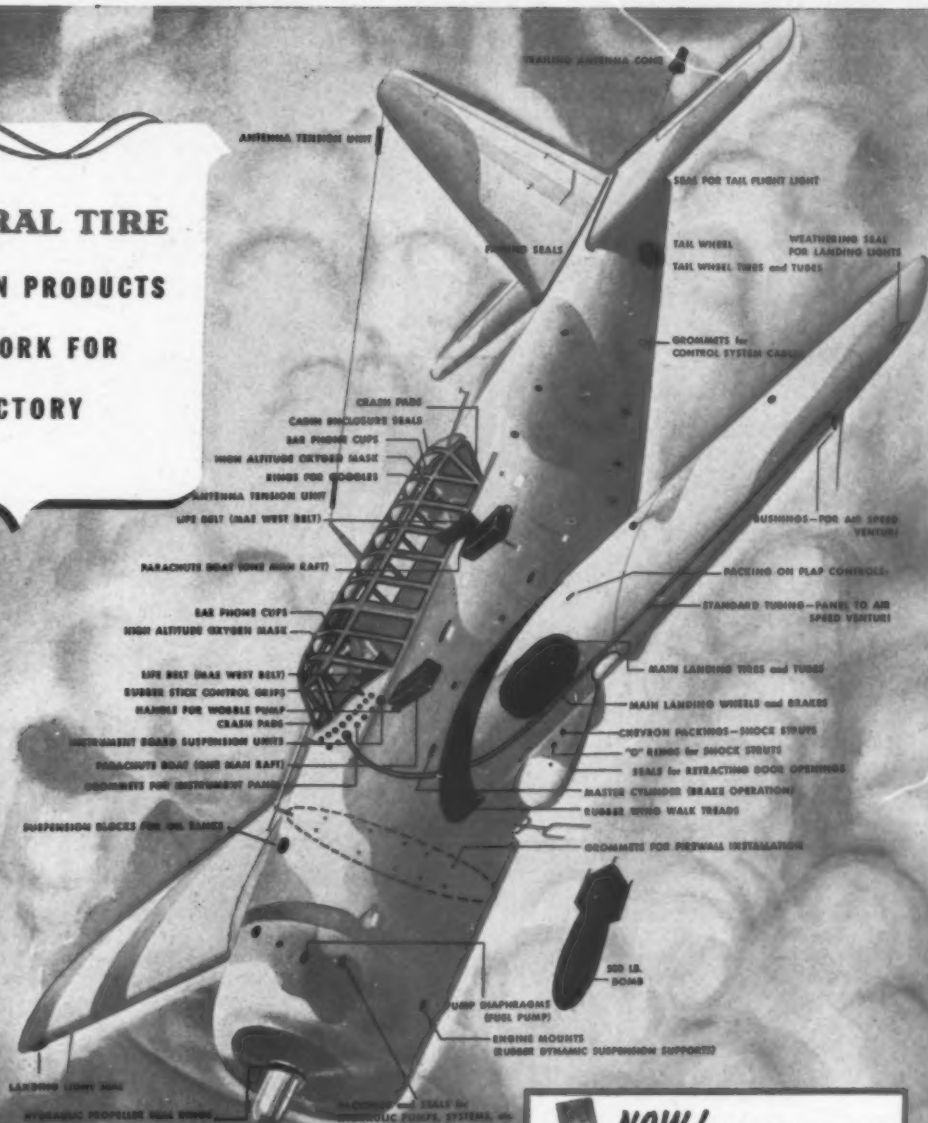
Reorganization: While reorganization of the Aeronautical Chamber of Commerce continues to move slowly and revolves largely around a hunt for a strong chief executive to be hired for a least three years, the Chamber's annual meeting has been called for 10 A.M., Dec. 2, at the Hotel Statler in Washington. Several top flight men are under consideration, but no decision has been reached. Meanwhile, a pattern of operation based on the successful work of the Aircraft War Production Councils is "recognized" by the Board, but decision will be deferred until the new chief executive is secured. The number of members of the board will be left at 15, as at present, with one-third being elected each year. Recommendations that a new name be adopted and that membership be limited to manufacturers will be submitted to a vote of the membership.

AMEX Kicked Around: Life Magazine gave American Export Airlines an unwarranted kick in the pants in its recent big splurge on international air transportation . . . all of which didn't help company morale. Life neatly put AMEX out of business at the end of the war, an event not likely to take place. Incidentally, AMEX has established a terrific record for trans-Atlantic war business and is receiving lush praise from the Navy for beating all previous records in passengers and tonnage hauled.

Caribbean Mixup: The Civil Aeronautics Board may, by the time this issue is in the mails, have decided whether or not to renew temporary foreign air carrier permits in the Caribbean area. Involved are Expreso Aereo Inter-Americano, TACA, British West Indian Airways, Cubana and KLM. Only KLM and Expreso had actually operated service during the six-months' period covered by their permits. The permits expired Nov. 1, but were extended until Nov. 10, the Board explaining that "additional time is necessary to secure certain data useful in determining whether these permits should be extended for any substantial additional period at this time." During the first week of November, CAB Vice Chairman Edward Warner quietly left Washington for a complete tour of the Caribbean. Purpose of the trip at this time was not announced, but best guess was that CAB wanted a first-hand report on the Caribbean. Some observers speculated that action on the renewals might be held up until Warner returned.

Testing Business Views: The Chamber of Commerce of the United States which recently kicked up a minor furore by writing a postwar international aviation policy, which included a plank permitting steamship companies to enter the air field, now plans to make a similar study in the domestic aviation field. A committee is to be appointed soon, and its work probably will be watched more closely than that of the international committee. Despite protests from John C. Cooper, vice president of Pan American Airways, that representatives of surface carrier-dominated airlines actually drew up the international policy, it was overwhelmingly approved in a referendum of 1,800 Chambers of Commerce throughout the country, with only 10% opposing it. Most notable opposition came from Miami, Fla., and Des Moines, Ia.

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(Continued from page 1)

and express essential to the war effort." The italics are ours.

The airlines continue to participate in the war effort through their operations of air cargo routes for the Air Transport Command. But the airplanes used for training of pilots are now no longer necessary for this program. And it is now perfectly clear to everyone that the airlines do not have sufficient equipment remaining in commercial operation "to provide space for air mail, passengers and express essential to the war effort."

Chicago and Southern Air Lines reports that during the month of July and August 9,210 fare paying passengers were unable to secure space on its system. Of this total, 1,640 were removed on account of priorities, while 674 off-line passengers were unable to secure space on other lines to reach their destinations. This is a very small example of what has happened to war-time airline business. Granted that some of those who were unable to get space were not on urgent war business, war-time industry can testify plentifully to its inability to get busy executives from one point to another in the prosecution of the war.

No airplanes? There are plenty of transport airplanes. Plenty. They're rolling off the line so fast that the ATC will have to be pretty good to keep the new planes supplied with crews. Airplane shortage? The sixty airplanes released from pilot training can easily be returned. The rank and file of the Air Transport Command knows this. So do the medium-rank officers. And so does the high ranking officer who has said in private conversation, "If the airlines raise too much hell we may have to throw them another half-dozen planes to keep them quiet." A fine way to prosecute a war!

There are hundreds of thousands of pounds of vital war express necessary for war-time industry. There are hundreds of thousands of sacks of war-time mail to be transported. And there are tens of thousands of war-time executives who need to move about on war business. Is the Army serious about warfaring civilian co-operation in the war effort? Or is it going to take a postwar investigation to uncover the mystery?

More Horse Sense on Helicopters

LAST ISSUE in these columns we dwelt on the ballyhoo in connection with helicopters and a few of our readers got the idea that we had turned into an old fossil reactionary who decries "anything new." Well, now the facts of the matter are that we are convinced as a result of talking with a good many aeronautical engineers during the past six months that the helicopter has an almost unlimited future. It is perhaps the greatest thing on aviation's horizon. We are 100% in favor of every possible development of the helicopter and, in fact, have always deplored the lack of government support in rotor blade experimentation.

So it was not with any lack of faith or belief in the tremendous future of the helicopter that we spoke out against over-selling of the public into thinking the helicopter is going to be available day after tomorrow in

the best Main Street showrooms. Our recent travels revealed the plain and simple fact that a large body of the public firmly believes it will be flying in helicopters shortly after the war ends, and that such helicopters will be available for the price of a good automobile. As everyone in the industry knows, this is not going to happen. The helicopter is going to take a lot of hard, serious, and expert development before it becomes a practical vehicle that the average person can operate without going to school for three months.

Aviation has over-sold itself more than once in the past as far as mass private flying is concerned. The evidence is in the record itself. After many years of vast talk and publicity there were only 25,000 civil airplanes licensed before the war. Meantime the helicopter development should not make the manufacturers of conventional-type airplanes suffer merely because a lot of people with flying desires are holding back awaiting the helicopter. Cessna, General, Piper, Aeronca, Taylorcraft and the others, are all going to have excellent light-planes after the war. If these manufacturers who struggled to exist before the war are to stay in business, they must have a market. The helicopter will come in due course, but it doesn't make sense to get the public excited about it when the public will certainly become disillusioned and let down when it finds out the truth. Let's think of the industry and its welfare as a whole.

Does anyone deny that we need many more airports? Of course we do, but the applicants for helicopter feeder routes are not doing aviation as a whole a service by going to towns seeking support of their applications by telling the city fathers that building airports is a waste of time and money. It is fine to think and plan for transport helicopters that may not need a landing field with 3,000-foot runways, or more, but are we to close up aviation in the meantime waiting for the helicopter to be perfected? The future of the helicopter is extremely bright and all power to it! But let's not fool anyone about the time and money needed to develop and perfect it.

Penny Wise . . . Etc.

IT'S AN OLD saying, but how illustrative of what is going on in South America. Penny wise and pound foolish! Getting airplane parts in South America is tougher than getting an air mail letter across the United States overnight. American-built airplanes are sitting on the ground rotting on more than one airport in Latin America because of the red tape and obstacles put in the way of export by the Army and State Department officials.

Why? The Army men say: "It's postwar stuff. You birds are just trying to keep a market going in war-time. We gotta be tough. Go on home to bed." But in trying to be tough the Army is not doing postwar civilian economy any good—and especially in aviation. Salesmen from other countries are making the rounds. Our aircraft have gotten a black eye. Our prestige has been lowered. Even the Germans man-

(Turn to next page)

Editorial

(Continued from preceding page)

aged to get spare parts to service German-made planes up until the U. S. entered the war. But for American equipment, the answer is always no. Army men who scream to the skies privately about the encroachment of the British are doing everything possible to help other countries in their postwar marketing by destroying our own markets. There is no shortage of the kind of parts we're talking about. When are we going to get smart internationally?

After all that Secretary of State Cordell Hull has done to build up U. S. prestige through his reciprocal trade agreements, it is a shame for restrictive controls of his own department to tear down this good will. Between the Army and the State Department, U. S. aviation is getting nowhere in Latin America.

Avoiding the Major Issue

THE AIR transport industry is going through critical days. It is unable to furnish adequate service for war-time passengers, express and mail. In the one country in the world where fast communications are vital to the war effort, air mail and express continues to be off-loaded and delayed.

Yet the Civil Aeronautics Board, with the single exception of the able chairman, L. Welch Pogue, keeps quiet. Where are Harlee Branch, Oswald Ryan, Edward P. Warner and Josh Lee during these critical days? Why aren't they speaking out on behalf of the air transport service which Congress said they should encourage and promote? Where is the leadership and courage which the public should expect from such a Board?

CAB board members are always most anxious to defend the Board's record. They can give individual orations at any time of the day or night on their activities and accomplishments. But when it comes to a basic issue that takes courage, they let someone else carry the ball. Isn't it about time that the public and the airlines can expect the Board members to see that the war effort is aided by adequate air transport service? Is stamina so lacking within the Board that it fails the public and the war effort so miserably at the very time when leadership is needed?

Misguided Morale

THANKS to an alert airline traffic manager a bit of priority dynamite was caught before anything happened. The airline in question received a reservations request for a dozen Navy men. Shortly thereafter Priority No. 3 arrived for each man. Recognizing some names as football players, the traffic manager did some fast checking, found that this was a Navy football team bound for a city some distance away. He called the main Washington priorities office and an investigation ensued. The priorities were cancelled. Soon a Navy commander called the airline raising considerable Cain about the cancellation. Asked how he intended to justify No. 3 priorities for a football team, the commander put forth great oratory about the need for morale! But the commander has since been transferred, and the airline was saved a lot of very likely unfavorable repercussions for carrying football teams during war.

Although this was definitely the fault of a Navy commander, the resulting bad publicity would have reflected on the airline. Commendation is due to smart traffic men who save their companies and the industry a lot of headaches by catching such bonehead antics in time.

An Intrastate Problem

THE Colorado Public Utilities Commission, a state body with extremely limited experience in air transportation, has granted a certificate for intrastate operations to S. N. Drum. This poses a knotty problem to interstate carriers and to the Civil Aeronautics Board. In the long run it is extremely unlikely that Mr. Drum can escape action by the CAB, for the roots of interstate commerce are buried very deep in national law. For the best interests of the industry, of the traveling public, and of orderly economic and safety regulation, it would not be healthy to have intrastate operators outside the scope of the CAB. The conflict is very sharp. Much as we prefer state's rights, and private initiative, whenever these are humanly possible, air transportation is too important nationally to permit two sets of regulations for public carriers. This is all the more reason for the early passage of the pending Lea Bill (H.R. 3420) which would effectively end any disputes and conflicts over proposed intrastate routes.

No Waste?

THE other day an airline finally obtained a 14-passenger Lockheed Lodestar that had been in the hands of the Army since the requisitioning last year. The log showed that the airplane had been used an average of 21 minutes a day over a period of 14 months! Less than one-twentieth of the use that it would have obtained in commercial service. This means about 147 hours of operation in 14 months instead of the minimum of 4200 hours if the plane had been operated ten hours a day commercially. And there is no wastage in Army transport equipment? Figure up yourselves how many thousands of passengers and tens of thousands of pounds of mail and express could have reached their destinations faster. Readers are invited to submit additional examples. Names will be kept confidential, but the instances of abuse must be substantiated or be susceptible of verification.

On the Bandwagon Now

REMEMBER how the Army ground forces (and even the Air Forces) fought bitterly against buying "grasshopper" lightplanes? Remember the ridicule heaped upon those who said lightplanes were useful in war? Sure you do. And now what happens? They're being used for everything under the sun. Even Lieutenant Generals use them as taxi-cabs. They even land in city streets. They have performed superbly when there was not a single other means of transportation possible. The grasshopper has more than justified all claims made for it—but oh what a fight to get the blind to see, only two short years ago!

WAYNE W. PARRISH

Letters

Dearborn, Michigan
November 2, 1943.

To the Editor:

It has been most wholesome and encouraging to all aviation to find, at any time, a commercial organization with vision enough to look even ahead of the engineer to see what is coming and prepare itself for commercial activity in the new world which engineering is opening up.

The few investors who have had vision enough to look ahead have been those who have made your progress, and mine, possible—and our business has been visualizing, working at the impossible and making fact out of fiction. Therefore, it is most disturbing to find one of the visionary, one of the front line officers of the campaign, suddenly reversing himself in such an editorial as yours of November 1.

If the Wrights had had this viewpoint we would never have had aviation. If Sikorsky had listened to Gene Wilson, Fred Rentschler, and all his bosses, we would not today have any helicopter—good or bad. If the U. S. had listened to Billy Mitchell we might not have had this war. And if the world listens to your editorial (which it won't—because romance is on the other side) all aviation would be set back considerably.

So what if we have had only 1000 hours on the helicopter! Aviation was here when the Wrights had had only 1 hour—the rest was purely development.

A magazine gains authority for itself by the number of times it is right against all opposition. If you are sure you're right—stick to your guns! But remember the story about the elephant and be sure you are looking at the right and before you draw any conclusions.

In closing, I might suggest that you examine the papers presented by Greyhound and the type of lines they specify before you draw further conclusions regarding any competition with established airlines.

More power to your right arm—but be sure to stay on the beam!

WILLIAM B. STOUT
Stout Research
Division of Consolidated
Vultee Aircraft Corp.

(Editor's Note: Thanks to one of aviation's really great men for a constructive letter. But let able Bill Stout re-read the editorial. Super-promotional efforts which lead the public to think it will be able to buy a helicopter for \$1,500 or so two years after the cessation of hostilities do not promote the industry on a sound basis. The helicopter has an unlimited—almost miraculous—future in the opinion of almost all aeronautical engineers. But aviation has too often promised something big "just around the corner." The aircraft industry must sell airplanes TOMORROW to keep in business—and we mean Cessna, Piper, General, Taylorcraft, Aeronca, Culver and all the rest. We certainly believe every possible effort must be made to develop the helicopter. When we said, "Why not give the helicopter a little rest?" we meant this in terms of publicity, not development. We believe it wrong to over-sell the public.)

Toledo, Ohio
November 1, 1943.

To the Editor:

In fairness to both pioneers of America's aviation, and to those whose interest, initiative, and means have always been ready to assist the development of aeronautics in this country, I register an emphatic protest against what I believe to be an uncalled-for stand by you against helicopter publicity.

Surely you will agree that every phase of aeronautics needs support—especially when such a phase is being developed by such known

aeronautical leaders as Bill Stout, the Kelletts, and Pitcairn. Surely, you must agree that in the early days of aviation, the support given its pioneers by us of the aviation press, was a principal factor in the success which aviation manufacturers enjoy today.

There is something wrong with the industry itself when it takes a stand against a new phase of it. Must the jealousy of something new which too often has been apparent in all of America's aviation again display its ugliness? It's the same old story, this time. It's like that of the pilots who too long thought that anyone who did not fly had no legitimate part in aviation.

As one of the accepted voices of the aviation industry, *American Aviation* should, I believe, examine the field, critically if it must be, but at the same time without unkindly and unfairly suggesting that "Why not give the helicopter a little rest?"

It was not so long ago that there were scoffers—and plenty of them—who insisted that the lightplane had no part in the industry. You surely recall that even the present administration took too long to recognize the value of even the air arm of the U. S. Army, and the U. S. Navy.

As for your coincidental adverse comments against surface carriers getting into the air transport business—well, let's look at the record:

TWA, one of the major transcontinental lines, owes its inception to the pioneering spirit of the Pennsylvania Railroad.

Northwest Airlines in its early days found it profitable to cooperate with the leading railroads operating between Chicago and the Twin Cities.

You can't deny that surface carriers have been of value to the airlines.

When we attempt to set up a phase of transportation so that others can not enter the sacred domain, we are not operating according to the American way of doing things.

If we try to assume that the air is a domain open to a favored few, then we might as well try to limit the manufacture of automobiles to one company, or pass a law that John Jones can walk only on one side of the street, because his neighbor walked on the other side long before John Jones moved onto that street. I see no difference between one brand of reasoning and the other.

Rather than become alarmed at attempts of Greyhound to enter the air transport field, why can't the ATA and others of the air transport field sit down with Greyhound and talk it out? When air transport executives assume the air of a little boy who must cry to the high heavens just because another little boy might want to play in the same yard, it's time those criers grew up.

What if Greyhound does wish to enter the field? With helicopters, that system could feed plenty of air travel business to existing airlines. And if Greyhound could offer air transportation in competition to existing carriers, at the same or better rates, and with the same convenience and speed in travel, I'll say, "Let Greyhound do it!"

My final thought is that if the aviation press is going to be fair and impartial in its reporting and analysis of what is news, we must consider all factors before taking a stand against any one of them.

ARTHUR H. RICE,
Associate Editor
Mid-West Aviation & Yachting

(Editor's Note: Does writer Rice want to let Greyhound gobble up the bulk of the prospective feeder business into a big transport financial combine, thus keeping out of aviation the men who have helped make it what it is today? Is a monopolistic bus-airline feeder combine what writer Rice really wants?)

New York, N. Y.

To the Editor:

I wish to thank you very much for giving my commentaries so much space in your November 1 issue of *American Aviation* . . .

About the picture illustrating the article I am going to tell you a funny story . . . I myself do think that it looks more like some unshaven . . . emigrant. But here is the story: a few days ago a gentleman from an American air transport company came to see me at my office. Talking about passenger service and other matters usually discussed by aviation people, we finally came to the article published in your review and suddenly he asked me if by any chance he couldn't meet the gentleman whose picture he saw in *American Aviation*. When I disclosed to him that the one he was talking to and the one he had looked at depicted in your paper was the same person, he grinned at me with an expression which only could mean: "Don't kid me." Then he became uneasy—did I really speak the truth—hesitated—after a while found the way to give me his confidence and the conversation went on in the most cheerful form. When he left, I had my doubts, whether or no.

HENRY E. PILLICHODY.

(To Henry E. Pillichody, former manager of Swissair, now in this country on behalf of the Swiss National Office of Transportation, thanks for an interesting letter. When *American Aviation's* photographer took his picture, Pillichody warned that he had never had a picture taken that looked like him. His record evidently is still 100%.—Ed. Note)

Philadelphia, Pa.

To the Editor:

I have noted your editorial in the October 15 issue of *American Aviation*.

Why nominate some new multi-purpose association to be the Pilots' Service Organization when AOPA is already doing that job? Such a suggestion tends to split support and harm the very cause it is attempting to help.

AOPA has one and only one job, namely to help the pilot and to support the pilot first, last, and all the time, and against all comers. AOPA cooperates with the airlines, the C.A.A., the law makers, etc., but when those interests run counter to the pilot's interest, AOPA does not straddle any fences. It is standing firmly on the pilot's side of the fence, facing outward, cleared for action.

Pilots all over the U. S. know this, not from our self-advertising, of which we do very little, but from the local examples they have seen where pilots wanted definite jobs done for them and AOPA did them. On file are many hundreds of instances of such help successfully rendered that can be shown to anyone interested.

An indication of the pilot's satisfaction with AOPA's work is the fact that their membership fees have run AOPA for the past sixteen months continuously in the black. No donations have been asked or received from any source whatsoever during that time.

AOPA's program of expansion, leadership, and service is completely planned ready to put into postwar operation.

We wish to point out that while many other organizations have found the war-time going quite difficult and have either folded up or spent much time getting ready to do something, AOPA has been doing the job, doing it efficiently and at low cost.

We assuredly welcome suggestions from any source as to how our service can be bettered as we are constantly on the alert for new ideas.

L. P. SHARPLES
Chairman, Executive Committee
Aircraft Owners and Pilots Association

AIR POWER AND TOTAL WAR. By Cy Caldwell. Coward McCann, Inc., New York. 244 pp. \$2.50.

Cy Caldwell's acrid and often scorching writing in the '30's was a by-word in aviation. It was as much a part of the times as the feuding that went on in federal agencies concerned with aviation, the National Air Races, and the struggles of a young industry. Cy's book on air power will come as a complete surprise to many. It is a sober, thoughtful, restrained analysis of the role airpower has played in the current war. It is the product of a lot of sound thinking and measured reflections.

The author admits freely that he was one of the most rabid air enthusiasts of prewar days. But he says "the events of this war have disclosed that air enthusiasts have overestimated the power of the air arm quite as much as orthodox army or navy officers have underestimated it. Air power has not proven itself to be an all-conquering force. On the other hand, it has progressed far beyond the status of an army and navy auxiliary, the role to which orthodox military thinking consigned it in the years before 1939."

Caldwell believes in independence for the air arm but believes it is debatable whether this independence should be obtained in the midst of war. Like many others, he realizes that this war moved forward so swiftly that airpower will not have its greatest opportunity to prove what it can do. It's "the next war" that may count more.

He believes that "overzealous claims by air enthusiasts have done almost as much to hold back the growth of American air power as has the natural inertia of the older forces of national defense." Airmen will find much to agree with in Caldwell's book, especially in his analysis of the air battles fought to date and in the growth of air power generally. They will also find plenty to disagree with. It is still too early to determine how decisive, if at all, air power has been in the present war, but Caldwell may yet be willing to give somewhat more credit to this weapon than he has done in his book. In any event, he has done a creditable and stimulating job.

KNOWING THE WEATHER. By T. Morris Longstreth. 150 pages. Illustrated. MacMillan Co., New York. \$1.69.

The author wrote this handbook of weather forecasting for the amateur as well as for the expert, since the censorship of weather publication has brought an awkward situation for civilians bereft of essential daily reports. Natural signs of imminent atmospheric conditions are explained and illustrated through "readings" of clouds, winds, temperatures and simple barometers. The reader may find it well worth his while to study these chapters.

Weather may seem a boring subject, but Longstreth has a fortunate talent for writing clearly and picturesquely for the layman. A glossary, several fundamental charts on weather trends and measures, a bibliography, and a complete index make this an essential book to own for constant reference.

—E. B. H.

THIS WINGED WORLD. (An Anthology of Aviation Fiction). By Thomas Collison. 520 pages. Coward McCann Inc., New York. \$2.50.

This anthology is a worthwhile cross-section of fiction by capable authors who have pioneered in literary aviation development. Collison has studied the arrangement of the stories with an eye to the chronological development of flying through the ages, starting with the Greek myth of Daedalus and Icarus followed by fantastic dreams of future aviation which were speculated upon in the time of Samuel Johnson, Poe and H. G. Wells.

With the advent of the Wright Brothers came a trend of aviation stories that describe the psychological as well as the rudimentary mechanical development of the early 1900s. The fiction picked from this period is written by Sinclair Lewis and Sir Arthur Conan Doyle and contemporaries.

The book is most noteworthy for the short stories written from the first World War to the present day. During the First War quantities of literature were written on the fear element and fortunately the author has found comparatively good examples of aviation tales during those days to compare with the modern war stories by Paul Gallico and Leland Jamieson. The collection alone is interesting as an introductory step to a new field of literature in the future.

—E. B. H.

THE OBSERVER'S BOOK ON ASTRO-NAVIGATION, Parts 3 and 4, by Francis Chichester. 34 and 142 pages, respectively. Chemical Publishing Co., Brooklyn, N. Y. \$1.50 each.

These are the third and fourth books by the author on astro-navigation. In Part I he dealt briefly with the uses and limitations of air navigation by the heavenly bodies, stripping down the mechanism of position-fixing and telling how it works. Part II went more into the mechanics of the thing. Part III contains chapters on air navigation, stars, the planisphere, methods of solving the position triangle, star curves and examples illustrating use of Weems' star curves together with a reproduction of the Flower Planisphere and Star Charts. The object of Part IV is to help an observer learn sufficient astro-navigation for position-fixing in the air. The book is also intended to serve as a refresher for the man who has already learned astro-navigation.

ALLIED'S RADIO DATA HANDBOOK. Edited by Lieut. Nelson M. Cooke, USN, U. S. Naval Research Laboratory, Washington, D. C. Published by Allied Radio Corp., Chicago. 25 cents, 48 pp.

This is a condensed handbook of formulae, charts and data most commonly used in the fields of radio and electronics. The text is divided into four parts: Mathematical Data, Radio and Electronic Formulae; Engineering and Servicing Information and the complete set of four-place Log and Trig tables.

The Engineering and Servicing Data section covers such subjects as: Radio Color Codes, interchangeable tubes, pilot lamps, plug-in ballast resistors, coil winding, etc. The formula section presents relationships for resistance, capacitance, inductance, vacuum tube constants, "Q" factor, impedance, meter shunts and multipliers, and so on.

This text should serve as an aid to the student learning fundamentals; the engineer desiring ready reference or the serviceman wishing technical and maintenance data.

E. J. F.

NATIONAL EMERGENCY STEELS. The American Society for Metals, 7301 Euclid Ave., Cleveland. 50 cents, 72 pages; paper bound.

This pamphlet has been prepared largely from technical presentations on the NE steels first published in "Metal Progress." The realization of imminent shortages of alloying elements prompted the development of the NE steels and a desire to assure a better understanding of their properties and a more full use of them by all parties has apparently prompted this compilation of technical papers.

Many of the specific NE steels as well as certain of the "families" of NE steels are analyzed in detail as to composition, properties and application and such allied subjects as the use of the alternates for aircraft parts, their weldability, their machinability and the

economics of substitution are treated by experts. The booklet is of considerable value to anyone actively dealing in today's steels, particularly to those who are in the technical end of the business.

E. J. F.

SYNTHETIC ADHESIVES. Paul L. Smith; Chemical Publishing Co., Brooklyn, N. Y. 1943; 119 pages, \$3.00.

Recent years have seen a great growth in the knowledge of and application of the synthetic adhesives particularly in the aircraft and allied industries. The author presents in this book a main reference work of a practical value which will give the user an idea of which adhesive will best suit his needs. An adequate description of the main types of synthetic adhesives: phenol-formaldehyde, urea-formaldehyde, acrylic resin, polyvinyl, cellulose, chlorinated rubber, etc., is presented and a chapter is devoted to the application of these cements in aircraft plywood.

Physical strengths, methods of application, drying times, appropriate solvents and special recipes go to make up the descriptive matter on the products. The user of synthetic adhesives is given an excellent opportunity to advance his general knowledge of the products as well as derive specific data on each type from a study of this text.

E. J. F.

THE OBSERVER'S BOOK ON AIRCRAFT INSTRUMENTS, by W. J. D. Allan. 102 pages. Chemical Publishing Co., Brooklyn, N. Y. \$1.50.

Illustrated with pictures and charts, this useful volume attempts to describe basic principles, rather than their application to a particular instrument. This has been done, the author explains, because of regulations regarding secrecy and because there is constant progress in the design of instruments, "and it is only the basic principles that remain constant." Chapters are included on modern compasses, gyroscopes, tele-compass, pressure instruments and the drift recorder.

Obituaries

Graham B. Grosvenor

Graham Bethune Grosvenor, 59 years old, special assistant to the president of Pan American Airways, a director of the corporation and a member of its executive committee, died Oct. 28 in New York. He had been associated with the development of American air transportation since 1927, when he became vice president and one of the five owners of the San Dominick Co., operators of the West Indies Aerial Express, which later merged with Pan American. In 1928, he became vice president of Fairchild Aviation Corp. and president of Fairchild Airplane Manufacturing Corp. an affiliate. With Fairchild Aviation Corp. as a nucleus, the Aviation Corp. was formed in 1929 with Mr. Grosvenor as president. Under his leadership, Aviation Corp. brought together airlines operating some 9,000 miles of airways, including Embry-Riddle Corp., Interstate Airlines, Colonial Airways, Universal Aviation, Southern Air Transport, Cuban Flying Services, and Alaskan Airways. In 1930, Aviation Corp. transferred its air transport activities to American Airways, Inc., predecessor company of American Airlines.

Petroleum Research and War in the Air

One of a series of original Esso research developments that help give U. S. planes an edge in the air.



ot many years ago, "hydraulic" to most people was just the name of a new-fangled auto brake.

No need to tell a flyer today how much more than that it is, with controls from landing gear to gun turrets dependent on hydraulic operation!

When you consider that the same plane may take off in ground temperature well over 100, and climb straight into sub-stratosphere cold way below zero—you can see that something very special was needed in the way of a hydraulic oil.

Out of our Univis 40 has come the answer. Through processes discovered some five years ago in Esso Laboratories has now been developed Univis J43—a hydraulic oil that'll flow, pour, and stay on the job both hotter and colder than you'll ever find a place to fly it!

For the present, of course, military needs take the entire output of Univis J43.

The Univis group is based on one of many special processes first discovered in Esso Laboratories. Esso research is one reason why the U. S. makes more effective use of its petroleum resources, in peace or war, than any other country on earth!

***ARMY-NAVY SPECIFICATION AN-VV-O-366b**

(Outside Esso marketing area, Univis J43 is available through Penola Inc., Pittsburgh, Pa., or its branch offices in principal cities).



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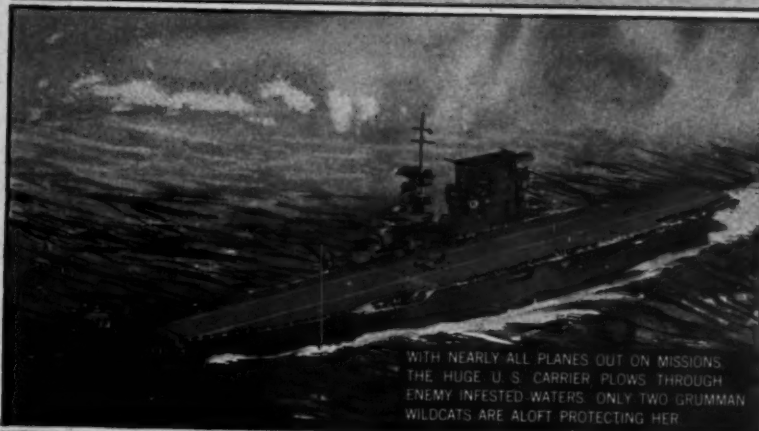
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Lone Grumman Wildcat Saves Carrier



WITH NEARLY ALL PLANES OUT ON MISSIONS, THE HUGE U. S. CARRIER PLOWS THROUGH ENEMY INFESTED WATERS. ONLY TWO GRUMMAN WILDCATS ARE ALOFT PROTECTING HER.



BY RADIO, FLIGHT ONE REPORTS TO CARRIER. "CLOUDS ARE BUILDING UP. CAN'T SEE MUCH." THEN—

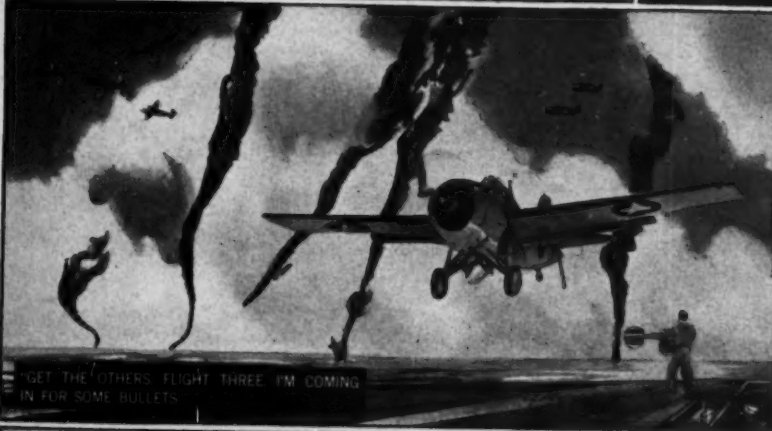
FLIGHT TWO TO FLIGHT ONE, RETURNING TO BASE TO CLEAR JAMMED GUN MECHANISM. HOLD EVERYTHING.



"FLIGHT ONE TO CARRIER! ONE TO CARRIER! NINE JAP BOMBERS FROM BEARING 240. SEND UP THOSE TWO WILDCATS THAT JUST CAME ABOARD. I'M GOING TO NEED HELP AND PLENTY OF IT. HERE GOES."



TWO NIPS ON THE WAY DOWN—NO MAKE IT FOUR. AND ANOTHER IN THE SIGHTS—THAT'S FIVE OF THE YELLOW RATS."



"GET THE OTHERS, FLIGHT THREE. I'M COMING IN FOR SOME BULLETS."



"LIEUTENANT, YOU AND YOUR GRUMMAN SAVED THIS CARRIER. THANKS, SKIPPER. I'M GLAD I WAS FLYING A WILDCAT."



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Airlines Map Contract Termination Plans

Special Group Will Work Out Details With Wright Field for Quick Cancellation

By CLIFFORD GUEST

DETERMINED that favorable changes in the war situation or actual cessation of hostilities will not catch them napping, domestic airlines are actively laying the groundwork for a sound policy of war contract termination in which emphasis will be upon quick settlement and a quick shift to peacetime operation.

While Congressional and public debate has focused attention on the problems of terminating manufacturers' contracts, the airlines are faced by equally important changes which, if not handled properly, would impair their ability to change from war service back to private operation.

To pave the way, the Airline Finance and Accounting Conference of the Air Transport Association has begun negotiations with Army Air Force officials at Wright Field to obtain a thorough and satisfactory policy definition on the many factors involved in terminating airline contracts.

Raymond G. Lochiel, treasurer of Pennsylvania-Central Airlines Corp., and president of the Conference, told American Aviation that informal talks with the Audit and Contract Sections at Wright Field already have indicated that a mutually satisfactory program can be worked out.

To prepare and submit a specific proposal attempting to anticipate all the problems involved, the following are serving on a committee with Lochiel: John Lockhart, Transcontinental & Western Air, Inc., chairman; H. K. Rulison, American Airlines, Inc.; C. G. Adams, Braniff Airways, Inc.; and E. I. Whyatt, Northwest Airlines, Inc.

Lochiel pointed out that termination agreements must be considered by the airlines under the circumstances at the time of termination.

One of the chief questions will be: "Will conscripted aircraft be returned so that time will be available to consider pro-

posals and counter proposals, or will the airlines be forced into the position of seeking quick termination agreements to obtain sufficient money to finance equipment purchases because such aircraft are not available to them?"

In addition to such major questions, the committee will seek to establish policy on a score of lesser points such as separation pay for workers who are 100% under war contract. The committee met recently in Chicago and plans to enter formal negotiations with Wright Field in the near future.

Application of Procurement Regulation No. 15—issued by the War Dept. as a guide to contract termination—to the peculiar problems of airline contracts will be threshed out.

The decision as to which contracts shall be terminated ordinarily will be made by the Chief of the Technical Service in charge of the Procurement, or his delegate, which in the case of the airlines will be the contracting officer.

The overall contract under which the airlines operate contains the standard cost-plus-fixed-fee contract termination article which provides primarily for:

1. Discontinuance.
2. Transfer to the Government or other appropriate disposition of property, in the hands of the contractor, which has been acquired for the contract.

3. Payment of contractor's cost.
4. Adjustment of the fixed fee in the light of the reduced amount of work.

The regulation prescribes much the same procedure for termination of cost-plus-fixed-fee contracts as for lump sum supply contracts. Probably the most important difference involves the problem of renegotiations. In termination of cost-plus-fixed-fee contracts, adjustments of the fees are usually necessary to reflect the reduction of work on the part of contractors and may be made by negotiated agreement. Where such adjustments are, in fact, made by negotiated agreement, the Chief of a

any Technical Service is authorized to exempt the terminated contract and the settlement agreement from statutory renegotiation.

Ordinarily the only source of potentially excessive profits from cost-plus fixed-fee contracts are the fees. It is well to remember, however, Lochiel pointed out, that the problem of the Price Adjustment Section in connection with renegotiation of such contracts is to determine whether the fee results in excessive profits in the light of all relevant factors and must consider among other items, the complexity of the work, efficiency of performance, extent and nature of disallowed costs, the comparison of actual costs with estimated costs, and the extent of Government assistance.

Now pending before Congress are two bills, H.R. 3022 and S. 1268, providing for payments up to 90% of the amount which the contracting agency finds to be due after a preliminary examination; and up to 75% of the amount certified by the contractors as owing from the Government.

"While it is too early to hazard a guess as to what the outcome of such legislation will be, it seems safe to assume that the theme of the War Department's regulations will be buttressed by legislation that will afford financial protection to the over-extended war contractors who are doing a volume of business wholly out of proportion to their working capital," Lochiel said.

"From the tone of the regulations and the legislation before Congress, the inference can be taken that the contractors who get there 'fustest with the mostest' sound accounting cost data, will be in an infinitely better position than those who present 'too little' information 'too late'."



Lochiel



Lockhart

Training of Army Pilots, Mechanics By Airlines Ends

The Air Transport Command has canceled contracts held by the airlines for the training of Army transport pilots and mechanics. Letters from ATC have been sent to the airlines informing them that the training will no longer be necessary. The letters are believed to have been sent to all lines.

Cancellation of the contracts, it is said, will not entail any loss on the part of the airlines, because all equipment and facilities are owned by the Army.

Big question in many minds was whether the airlines would be able to get any of the Douglas planes used in this transitional pilot training.

'Industry Needs Constructive Gov't Policy'

Squier Lists Four Programs Which 'Should Be Launched' In Washington

THE GOVERNMENT must determine immediately a constructive policy on at least four major problems if the aircraft industry is to survive after the war, Carl B. Squier, vice president and sales manager of Lockheed Aircraft Corp., declared in a recent address before the Southern California Chapter of the American Association of Advertising Agencies.

He listed these necessities as:

1. A program of prompt payment of Government obligations when war contracts are terminated.

2. A program for control of the disposal of surplus supplies and equipment.

3. A program for the disposition of Government-owned production facilities, so that the Government will not compete with private industry.

4. A program to permit manufacturers to build cash reserves now to meet postwar conversion needs.

Emphasizing that the aircraft industry is thoroughly committed to the principle of "first things first" and the winning of the war he said, "those responsible for the management of our companies cannot take time to think about problems of postwar products and markets" and expressed serious doubt that the industry can go successfully into the conversion period without immediate determination of government policies.

On his first point Squier asserted that until the question of prompt settlement of Government obligations to contractors on termination of war contracts is answered, industry will be in no position to plan for postwar reconversion.

"On what basis will the Government settle its \$75,000,000,000 debt to industry for war contracts, which it is estimated will be incomplete when the war ends," he asked.

"Unless these contracts are settled quickly and equitably, many industries would be bankrupt before termination payments are received. From these contracts must come the funds to meet obligations of prime contractors to their subcontractors, and in turn, for the subcontractors to meet their obligations.

"This is not a question that interests large industries alone, for literally hundreds of thousands of small businesses and subcontractors in every hamlet and village in America have a stake in this money. It affects the jobs of 20 million war workers.

"The experience of the last war offers scant encouragement to industry. Following World War I, when only \$7,500,000,000 dollars of incomplete war contracts were involved, it required an average of three and one-half years to settle contractors' claims. In this war, with 10 times the amount of contracts involved, the task will be much greater, and unless provision is made for prompt and final settlement, many companies will be faced with financial ruin.

"During World War I profits were relatively unrestricted, and industries were able to set aside funds to meet future

needs. But today, renegotiation and high excess profits taxes make the accumulation of adequate postwar reserves a virtual impossibility. Industries such as aircraft will be particularly hard hit if the government continues to pursue this policy. Few companies will have sufficient reserves to carry them through prolonged waiting periods."

Disposition of the \$25,000,000,000 of surplus war equipment and supplies which it is estimated will be on hand when the war ends "challenges the full cooperation and sober judgment of business, labor, industry, consumers, farmers and government," he declared.

He pointed out that Congressman Carter Manasco appraised the situation correctly when he said, "When the war is over we will have enough shoes on hand, if dumped on the world market, to destroy the shoe industry. The same is true of airplane motors, airplane parts, and many other items."

Relative to disposition of government-owned plants and facilities, Squier said:

"When the government-owned facilities were established, provision was made in most instances whereby, on the termination of war, the private companies operating the plants could purchase them. But there is a great question as to private industry's ability to buy them."

Lowell H. Swenson Named General Manager of NAA



Lowell Swenson

In a move to strengthen the National Aeronautics Association and concentrate its activities into a well-defined policy, appointment of Lowell H. Swenson of Minneapolis as general manager of NAA

Aviation Calendar

Dec. 1-3—Aviation Distributors and Manufacturers Association, annual meeting, St. Louis, Mo.

Dec. 2-4—National Aviation Training Association annual convention, St. Louis.

Dec. 2—Annual meeting, Aeronautical Chamber of Commerce of America, Inc., 10 a.m., Statler Hotel, Washington, D. C.

Dec. 17—Wright Brothers Lecture and dinner, sponsored by Institute of Aeronautical Sciences, National Aeronautic Association, Air Transport Association, and Aeronautical Chamber of Commerce, Washington, D. C.

Dec. 17—Observance of Kitty Hawk Day in North Carolina, 40th anniversary of Wright Brothers flight.

Jan. 25-27—Twelfth Annual meeting, Institute of the Aeronautical Sciences, Columbia University, New York City.

"In the first place, many of these facilities were located strictly in accordance with military expediency, and with little or no thought as to labor availability, proximity to markets and raw materials, transportation and utility costs, and other basic economic factors in the operation of a privately owned, competitive enterprise.

"Government stands today in the position of being industry's biggest consumer, and still holding the threat of becoming its biggest competitor."

As to the problem of building cash reserves for postwar production, Squier said:

"How can we maintain war level employment after victory has been won? How is the question of building cash reserves now related to this subject of postwar jobs and economic prosperity? The answer is a simple one—industry must be able to provide itself with the essential tools to do its peace-time job, just as the essential tools were provided to do our wartime job.

(Turn to page 46)

was announced last week at NAA's national clinic on domestic aviation in Oklahoma City.

Swenson, who is expected to take the reins of NAA on Jan. 1, is president of the Greater Twin Cities chapter of NAA and has been one of the most active figures for several years in promoting an effective program among the 17 chapters in Minnesota, helping to make them one of the most important segments of the organization.

Swenson is currently engaged in sales promotion and public relations work for a large boiler manufacturing concern. He has been particularly active in the field of public relations for smaller manufacturers and formed the first trade association for coal dealers in Minnesota.

British 'Queen Mary' Blueprints Ready

F. G. Miles, Famed Designer, Submits Them to Ministry of Aircraft Production

PLANS FOR A MULTI-ENGINEED, spacious airliner designed to keep the British Commonwealth in the forefront of civil air transport, have been submitted to the Ministry of Aircraft Production by F. G. Miles, famous British designer.

It will have a range of 3,450 miles and will carry 50 passengers and crew of five at a cruising speed of 350 miles an hour against a 50 mile-an-hour headwind.

From the United Kingdom a flight to Montreal would take 9½ hours and to New York 10 hours non-stop. Johannesburg would be reached in 17½ to 18 hours flying time, Karachi 13 hours, Hong-Kong 21½ hours, Melbourne 34½ hours and New Zealand 39½ hours.

The basic design of the aircraft can be adapted to produce a medium-range plane (2,000 to 2,500 miles), carrying 100 passengers and a crew of five and a short-range version with an operational range of 1,100 miles, according to Miles.

It is also readily convertible into a military bomber or troop carrier.

The Miles "X" as it is known, is being developed by Phillips & Powis Aircraft, Ltd., of Reading, manufacturers of the Miles Master and Miles Magister planes which are used in thousands by the R. A. F. for the training of fighter pilots. Considerable research on the "X" has been carried out, wind tunnel tests have been made and a flying scale model has been built and flown.

The aircraft is designed to have a performance higher than anything yet attained and to be representative in the highest degree of aerodynamic efficiency attainable in the light of present-day knowledge. The plans are so far advanced that the whole undertaking can be completed in a reasonably short time but it is proposed to build the machine in stages so as to allow for revision in the light of any new discovery or knowledge that may become available.

An essential feature of the "X" layout is the manner in which the fuselage merges into the wing. This not only enhances aerodynamic efficiency by reducing interference drag, but also provides a greater space for accommodation of

passengers and freight than is possible on any orthodox aircraft of similar size, the volume of the cabin being over 6,000 cubic feet.

The machine will be of all-metal construction with special attention to external finish. The center section spars are made in the form of a stressed ring having the same shape as that of the fuselage in their vicinity. In this way an unobstructed cabin is achieved.

Another advanced feature of the "X" design which adds to the overall aerodynamic efficiency, is the housing of the eight engines, gear-boxes, radiators, oil



British "X" Seen from Below

coolers, exhaust fans and ducts completely within the wing.

For servicing purposes, large removable panels are provided over the whole of the power units while for replacement the engines may be lowered through the under surface of the wing, special built-in tackle being provided for the purpose.

To ensure that the strength of the wing is not impaired by the presence of these removable panels, a special design of stress-carrying panel will be employed.

The flaps are of the Miles patented extensible type. This type of flap has been extensively tested on actual flight trials and by this means it has been found possible to achieve a maximum lift coefficient of more than three, without adverse effects on the longitudinal control.

Provision can be made for either an orthodox or a tricycle undercarriage and for a pressurized cabin at the expense of some payload.

In the layout of the pilots' cabin, the two main objects aimed at have been perfection of view and simplicity of control.

In addition the instruments have been limited to the normal blind-flying panel, the beam approach instruments, two compasses and an outside-air thermometer.

The engine and fuel controls, instruments and the undercarriage control are all in charge of the Flight Engineer and are conveniently grouped at his station, the pilots being provided with two throttles and the flap control in addition to the normal flying controls and trimming tabs.

(Turn to page 48)

Leading Particulars of the "X"

Dimensions

Span—150 ft.
Length—110 ft.
Gross Wing Area—2,350 sq. ft.
Aspect Ratio—9.6.
Aerofoil—18%—12% laminar flow section.

Power Plant

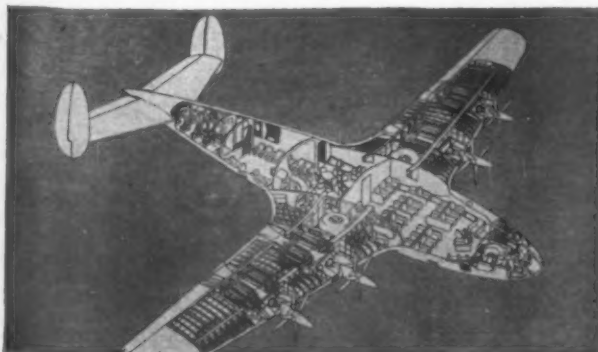
Engines—8 Rolls Royce.
Max. T.H.P., assumed—14,000 at 425 m.p.h. at 16,000 ft.
Max. weak mixture continuous T.H.P., assumed—10,000 at 380 m.p.h. at 18,000 ft.

Weights

Loaded weight—130,000 lbs.
Wing loading at take-off—55.2 lb./sq. ft.
Power loading at take-off—8.96 lb./h.p.

Performance

Max. speed, Transport—425 m.p.h. at 16,000 ft.
Max. speed, Bomber—400 m.p.h. at 16,000 ft.
Initial climb—1,500 ft. per min.
Run to take-off—650 yds.
Distance to clear 50 ft.—1,000 yds.
Range—3,450 miles against 50 m.p.h. wind at 350 m.p.h. at 7,000 ft.



Cutaway of the proposed new British super airliner designed by F. G. Miles shows graphically the magnitude of the plane and the spacious arrangements for passengers. Sketch at right shows the interior of the main lounge embodying "all the comforts of home" in the proposed sky giant.

Record Oct. Plane Output Due to Numerous Factors

THE STEEP rise in aircraft production during October brought enthusiastic praise for the industry from Washington officials. "We are encouraged by last month's showing," said WPB Chairman Donald M. Nelson. "Not only has the total number of planes passed the 8,000 mark for the first time, but the continuing emphasis on bigger and more powerful models, especially bombers, is evidenced by the record total of four-motored bombers."

WPB announced that the total of 8,362 contained outstanding accomplishments in fighter production. One top-preference fighter, the P-38, production of which has been delayed recently by design changes, showed an exceptionally large gain for the month.

Two things were clearly proven by the new production total, officials believe. The Byrnes plan for the West Coast and other critical areas seemed to be exerting a favorable influence, although all agreed it was too early to see its full effect. The other important factor was that all aircraft companies and workers were expending full efforts to meet the government-set goals.

The year's record for aircraft production has shown alternating periods of sharp increases and productive plateaus. The total of 68,087 planes breaks down into the following monthly figures: Jan., 5,013; Feb., 5,452; Mar., 6,201; Apr., 6,403; May, 7,015; June, 7,058; July, 7,373; Aug., 7,612; Sept., 7,598; Oct., 8,362.

Production officials estimated that only a slight monthly increase in November and December would be necessary to meet scheduled goals for the year. The October record, Nelson pointed out, exceeded slightly a rate of 100,000 planes a year.

Production on the West Coast reflected the new national rise. This was interpreted in Washington as a proof of the early success of the Byrnes plan and of the great degree to which both the aircraft industry and communities on the West Coast are striving to make it work. Nationally, October airplane production showed a gain of 764 or 10% over September. The rise in weight was 9%.

On the West Coast, production was ahead of schedule and represented a 10% gain in numbers, 8% in weight.

The War Production Board traced the October gain in part to increased labor productivity in the airplane industry. Representatives of WPB and the Services have been conferring constantly with management and labor to find means of increasing output. Nelson revealed that average monthly airframe weight output per employee now approximates 60 pounds, compared with 28 pounds in January, 1941. "That increase, about 110%, represents the difference between the infant aircraft industry with which we started the war and the efficient industry, now approaching maturity," Nelson stated.

This attempt to increase labor productivity is closely linked with the problem of improving labor utilization, and eliminating manpower hoarding. Management is making a careful study of labor utilization in every aircraft plant on the West Coast.

One encouraging change took place in the last three weeks on the West Coast

when hiring steadily exceeded terminations by about 10%, for the first time in many months. West Coast manufacturers have been combatting turnover vigorously through such things as educational advertisements designed to point out to the public that turnover endangers airplane production and the stability of the community by creating an inflated labor demand. There is provision in the Byrnes manpower plan for the West Coast to cancel contracts when excessive turnover cannot be reduced.

The six-months deferment of necessary men, which began Nov. 1 and promises to be indefinitely extended, and the preparations being made to release 5,000 to 10,000 skilled aircraft workers from the Armed Forces will be helpful unquestionably, production spokesmen stated.

Experiments are being made at Northrop and North American plants on another project designed to increase production—the 10-hour shift. At North American's Inglewood plant all workers have been on the 10-hour shift for five weeks, women working a five-day week and men a six-day week. The Northrop experiment includes 15 departments which report a sharp drop in absenteeism and increased production. Most authorities, however, believe a minimum of three months operation is necessary before the

'Flying Fortress' Output Sets An All-Time Record

Production of Boeing Flying Fortresses for the month of October set an all-time record and P. G. Johnson, president of Boeing Aircraft Co., predicted that production will continue to increase and by the end of the year will have overtaken the goal set by the War Dept. for accelerated monthly deliveries.

The record was attributed partly to success of Boeing in increasing its personnel materially for one of the best hiring records in the industry.

A net gain of more than 4,200 employees was made during September and October, including 1,900 at the Seattle plant, 1,200 at Renton and 1,000 in branch plants. The upswing came after an intensive community-wide drive supported by the Flying Fortress Committee of the Seattle Chamber of Commerce and climaxed by an Army-sponsored outdoor spectacle.

merit of the plan can be conclusively proven.

The Aircraft War Production Council summarized the West Coast situation which, it said, looked "somewhat rosier" for the first time in five months. "In the first eight months of 1943," the council stated, "production was up 41.4% while employment had increased only 5.8%. The manpower trend also began to bend upward, after a long downhill slide. The gain was slight—only .2%—but it was a gain in the face of a turnover problem that saw 22,000 men and women leave their jobs in the month of August alone.

"Current net manpower need, to meet west coast airplane plants' constantly accelerated schedules, is 13,000 right now. With turnover averaging around 20,000 a month this means 33,000 workers must be hired to meet the present demand."

Manpower Program on West Coast 'Encouraging' for First 60 Days

RESULTS OF THE FIRST two months operation of the West Coast manpower and production plan were very encouraging, according to Washington production officials. West Coast aircraft companies, assigned top priority for manpower, promised draft deferment, skilled workers now in the Armed Forces and improved community conditions, realized they were being put to the final test. This time it had to work or else.

The end of October brought announcement of six-months deferment, and a probable extension beyond that time, of all "irreplaceable" workers. Quietly the Army went to work, also, "screening out" several thousand experienced aircraft workers from military service.

From the War Production Board went a telegram signed by Charles E. Wilson, Executive Vice Chairman, requesting the West Coast plants to adopt 10 hour shifts "to the maximum practicable extent." WPB also took concrete steps within the fortnight to improve living conditions by granting "military" priorities to housing projects in aircraft centers.

At San Diego, Los Angeles, Fort Worth and Dallas a priority rating of AA-1 was given for the purchase of critical materials required for projects authorized on Oct. 31. This priority rating is available for all construction in the areas slated for completion before March 31, 1944. The current housing programs were approved on the basis of the additional number of immigrant workers required in the four centers, principally for aircraft plants.

Los Angeles and San Diego aircraft workers were informed two weeks ago that 8,000 new units being built in those areas were to be earmarked for aircraft plant personnel.

Concrete actions taken by the Los Angeles Production Urgency and Manpower Priorities Committees, which jointly administer the West Coast plan, were summarized in a report received by American Aviation.

Highlights of the statement were: 17 key war activities ranging from production of fighter planes to high-octane gaso-

(Turn to page 45)

German Research Facilities 'Extensive'

Dr. Hunsaker Warns That Allied Quantity of Planes Could be Offset by Quality

By KATHERINE E. JOHNSON

THE MARGIN OF United States and British airpower superiority over Germany is narrow enough that the Germans "could conceivably repeat in reverse the history of the Battle of Britain," Dr. Jerome C. Hunsaker, chairman of the National Advisory Committee for Aeronautics, cautioned last fortnight in testimony before the House Appropriations Committee.

Allied advantages in plane numbers could be offset by German development of superior plane models through research, he contended.

Dr. Hunsaker appeared to justify a \$17,546,700 NACA supplemental appropriation request, made necessary by the increasing demands of the armed services for aeronautical research and development. The House approved all major items of the request, trimmed it by \$258,985, allowing for only a five-month instead of a six-month personnel estimate. NACA was recommended a total of \$17,287,715, allocated as follows:

Salaries and expenses, \$2,298,415; Langley Field, Va., construction, \$8,804,200; Ames Aeronautical Laboratory, Calif., construction, \$2,249,100; Aircraft Engine Research Laboratory, Cleveland, Ohio, construction, \$3,936,000.

The United States and Great Britain "as of last month" have superiority of airpower, both in numbers and in types, over Germany, Hunsaker assured Congressmen, but pointed out that NACA is aware of the possibility that the Germans can change this situation by developing new types. Germans have research facilities "at least as extensive as ours," he said. Both Gen. H. H. Arnold, commanding general of the Army Air Forces, and Vice Admiral John S. McCain, Deputy Chief of Naval Operations for Air, members of NACA, share this view, Dr. Hunsaker indicated.

Points to Battle of Britain

He pointed to the Battle of Britain as demonstration of the fact that superiority in aircraft performance is victorious over superiority in aircraft numbers. "The superior equipment of the British prevailed over the greater numbers of the Germans," he remarked.

"If the enemy produces aircraft having superior performance, his present disadvantage in numbers may be offset, as was proved possible by the British in 1940," Dr. Hunsaker declared. "The resourcefulness of the German war machine, supported by a research organization and facilities at least as extensive as ours, could conceivably repeat in reverse the history of the Battle of Britain."

The Allies are now beginning to get an inkling as to what German aeronautical research men are heading toward, Dr. Hunsaker said, predicting that more of their accomplishments will be felt by the Allies in the near future.

"We get a little drift of what is coming"

from Germany's very extensive research facilities for aircraft engines, because their activities were well known in the United States before the war, he reported. Nevertheless, Germany has been able to spring "surprises," and Dr. Hunsaker gave Congressmen one such example: "They brought out, entirely unsuspected, a high performance air-cooled engine when most of us thought the Germans were not working on air-cooled engines. They came out with an efficient and powerful air-cooled engine now used in their fighter airplanes."

To meet the improvements the enemy is disclosing from time to time, "a more vigorous prosecution" of aeronautical research, the basis for the present superior performance of our combat airplanes, is essential, Hunsaker emphasized.

Problems handled in NACA's laboratories relate both to new types of aircraft in the design stage and to the improvement of types now in service. "The Army and Navy are well aware of the limitations of present airplanes," he said.

Many new problems have arisen particularly with service aircraft operating above 400 miles per hour, attempting to operate effectively at higher altitudes and in diving at their terminal velocities dur-

de Seversky at Capitol



Pictured (left to right) are Maj. Alexander de Seversky, Rep. Jennings Randolph (D., W. Va.) and Rep. Percy Priest (D., Tenn.), member of the aviation subcommittee of the House Interstate and Foreign Commerce Committee, at a showing on Capitol Hill of Walt Disney's filming of de Seversky's book, "Victory Through Airpower." The showing, attended by over 100 Congressmen, was arranged by Randolph, Rep. Clifton A. Woodrum (D., Va.) and Rep. Fred Bradley (R., Mich.).

'Methuselah Club'

A group of Southwest Airways men have incorporated the Methuselah Club, an organization for "old time" pilots who are active in the war effort as flight instructors at Army contract schools. Purpose of the club, which is believed to have a potential national membership of 500 pilots, is to aid the veterans in finding positions in postwar civil aviation. Membership is restricted to men over 38, not members of the Enlisted Reserve, who hold Army flight instructor proficiency ratings, or the CAA equivalents. Headquarters of the club is at Thunderbird Field, Arizona. Walt Palmer is president.

ing combat maneuvers, he reported. These difficulties, he added, have caused the loss of lives of American pilots and aircraft and the grounding or restricted use of aircraft in service pending NACA studies and recommendations.

NACA's present appropriation request will provide for helicopter development, Dr. Hunsaker revealed. "The helicopter is now in the stage of being successfully flown in spite of gaps in our knowledge concerning rotor operation," he observed and said that testing apparatus which NACA proposes to build will enable the filling in of these "gaps."

Interdepartmental Postwar Aviation Committee Set Up In Australian Government

Australian Prime Minister John Curtin has announced the appointment of an interdepartmental postwar aviation committee, reporting to Arthur S. Drakeford, minister for Civil Aviation. The committee includes representatives from the department of Treasury, External Affairs, Postmaster-General, Transport, Aircraft Production and Air. Its chairman will be A. B. Corbett, director-general of Civil Aviation.

A tentative plan has been submitted to Joseph B. Chifley, minister for Postwar Reconstruction, according to a recent broadcast from Australia by Drakeford. Included in the plan are provisions for the establishment of airdromes ranging from 150 to 200 miles apart, so that flying time between any two towns in Australia will be no more than 24 hours.

"Australians played a part second to none in pioneering new international air routes and demonstrating to a then doubting world the practicability of air transport," Drakeford said. "The future of all external services depends on the policy adopted by the United Kingdom and by America."

Although Australia does not desire to see bitter competition in the international field, she will retain her rights, not allowing the United Kingdom's or her interests to be submerged, Drakeford warns.



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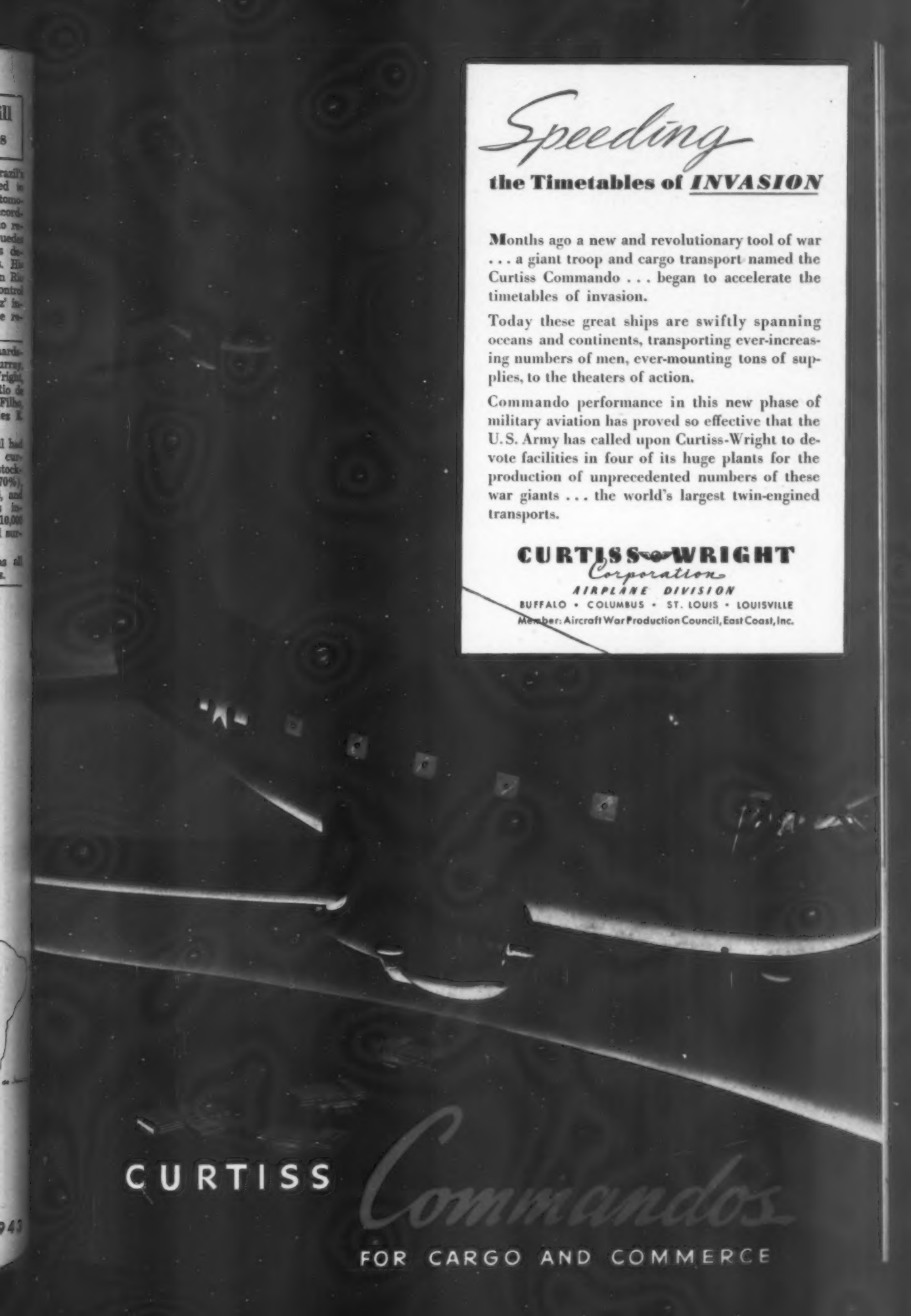
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At all these major bases and active fronts, U. S. Army Bell Airacobras are in the air day after day and week after week

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GAIN TIME ship early in day!

Vincent Letourneau, 23-year-old St. Paul soldier who crawled two miles to safety through a blazing battlefield in Tunisia after being wounded last March, has gone to work for Northwest Airlines as a timekeeper at Minneapolis Airport.

Capt. Robert E. Perlick, former Los Angeles pilot, now with the RAF Transport command, was cited on the King's birthday honors list for having delivered more aircraft to the United Kingdom than any other ferry pilot.

Dorothy Mackay, said to be the first woman in America to be granted an airport control tower operator's license, is in complete charge of Link trainer instruction at the warplane plant of Curtiss-Wright Corp., Buffalo.

Group Officer Lady Welsh has been named director of the British WAAF and promoted to Air Commandant. Lady Welsh succeeds Air Chief Commandant K. J. Trefusis Forbes, C.B.E., who leaves for special duties, but who remains senior officer of the service.

Comdr. Percy H. Lyon, United States Navy, has assumed the duties of superintendent of aviation training at the Naval Air Training Center, Pensacola, Fla., relieving Comdr. Cameron Briggs, who has been detached for duty afloat.

Col. Arnold H. Rich, United States Army retired, has been appointed director and general manager of the technical division of Embry-Riddle School of Aviation, Miami. He succeeds James E. Blakeley, who has been named general manager and director of Embry-Riddle's new Brazilian division and of the technical school soon to be opened by the company in Sao Paulo.

Robert F. Six, who was granted leave as president of Continental Air Lines in September, 1942, to accept a commission in the Air Transport Command, has been promoted to lieutenant colonel.

E. W. Hives, director and general manager of Rolls Royce, Ltd., London, recently visited Bell Aircraft's Niagara Frontier plants.

Maj. Kenneth E. Griffith, who helped organize Universal Airlines before that company was absorbed by American Airlines, has been named air liaison officer of the 3rd Service Command, Baltimore.

J. Earl Schaefer of Boeing's Wichita division is very proud of the fact that he was a West Point classmate of Gen. "Ike" Eisenhower. And well he might be!

I. G. Thompson, of Dallas, who has some airline plans for Mexico and Central America, has been in Washington recently. . . . Another visitor was Melvin Nuss, the live-wire manager of the Reading, Pa., airport.

Gwin Hicks, co-partner and manager of Buroker-Hicks Flying Service, Coeur d'Alene, Idaho, has been elected governor of the National Aviation Training Association, Seventh Region.



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Monro Denounces Air Monopoly

Arguments of House Minority

C. Bedell Monro, president of Pennsylvania-Central Airlines and advocate of bigger and better "small" airlines, has sparked off a fiery denouncement of the Congressional group which had reported itself as champion of his case in the House.

"No greater disaster could befall the small airlines than a development such as the Minority espouses," declared Monro in a letter to Rep. Alfred Bulwinkle (D., N. C.), chairman of the aviation subcommittee of Interstate and Foreign Commerce Committee.

Monro's letter dispelled any possibility that air transport interests are not aligned unanimously behind the Majority bill of the Committee's chairman, Rep. Clarence Lea (D., Cal.) and unanimously opposed to the Minority bill, sponsored by Rep. B. Carroll Reece (R., Tenn.). Lea's bill would continue existing law which bars surface carriers from the air carrier field on the theory that competing forms of transportation should not be controlled by the same interests.

Following is the text of Monro's letter: "The entire air transport industry, the smaller lines as well as the larger lines, is unanimously and strongly in favor of the Lea Civil Aviation bill . . . just reported by a large majority of the Committee on Interstate and Foreign Commerce.

"It has come to my attention that a Minority report on this bill cites some remarks recently made by me. This citation is apparently intended to support the Minority's arguments that the Lea bill deliberately fosters a monopoly of domes-

tic air transportation on the part of the four largest domestic airlines.

"The fact is that the inequality in the relative positions of the smaller and the larger airlines, which I referred to in the remarks cited, resulted from the chaotic conditions antedating the adoption of the Civil Aeronautics Act of 1938. That Act corrected those conditions and contained specific provision to guard against monopoly. The only hope of the smaller airlines lies in the wise administration of that Act in the spirit in which it was framed by your Committee in 1938.

"One reason that the smaller airlines so strongly favor the new Lea bill is that it strengthens the Civil Aeronautics Act and extends its very wise principles—calling for sound competition in air transportation—to all air commerce.

"The Minority Report favors the Reece bill. It is a source of amazement that the

Minority cry out against the dangers of monopoly but at the same time advocate the removal of present restrictions against surface carriers going into competitive air transportation. The Minority even suggest that surface carriers should provide feeder air service to the trunk air carriers, as well as engaging in trunk air service. No greater disaster could befall the small airlines than a development such as the Minority espouses. The smaller airlines would then be hopelessly caught between the present powerful large airlines and the even more powerful surface carriers. Our only salvation—if any—would be a forced sale of the modest assets which we have so diligently tried to build up. The Reece bill is leveled with deadly aim at the very heart of free enterprise in air transportation.

"I have read your Majority report attentively. It is a statesmanlike, far sighted discussion of civil aviation's problems, reflecting your long and arduous study. It and the bill you have framed are landmarks in the progress of civil aviation. May I respectfully express earnest hope that your bill will be approved by the House."

Martin 'Mars' Joins the Navy



The Mars demonstrated its ability to maintain and even gain altitude, with two of its engines cut and their propellers fully feathered, in one of recent tests prior to being turned over to the Navy Trial Board. Above photo was taken during such a test.

Small Airlines Back Lea Bill; Oppose Reece Measure

Every small airline in the U. S. placed itself on record in support of the Lea bill and in vigorous opposition to the Reece bill in a letter to Rep. Alfred Bulwinkle (D., N. C.), chairman of the aviation subcommittee of Interstate and Foreign Commerce Committee.

"In our considered judgment the assertions in the minority (Reece) report that the (Lea) bill would foster a monopoly by the larger air lines is wholly unfounded," declared the small lines in a letter signed by:

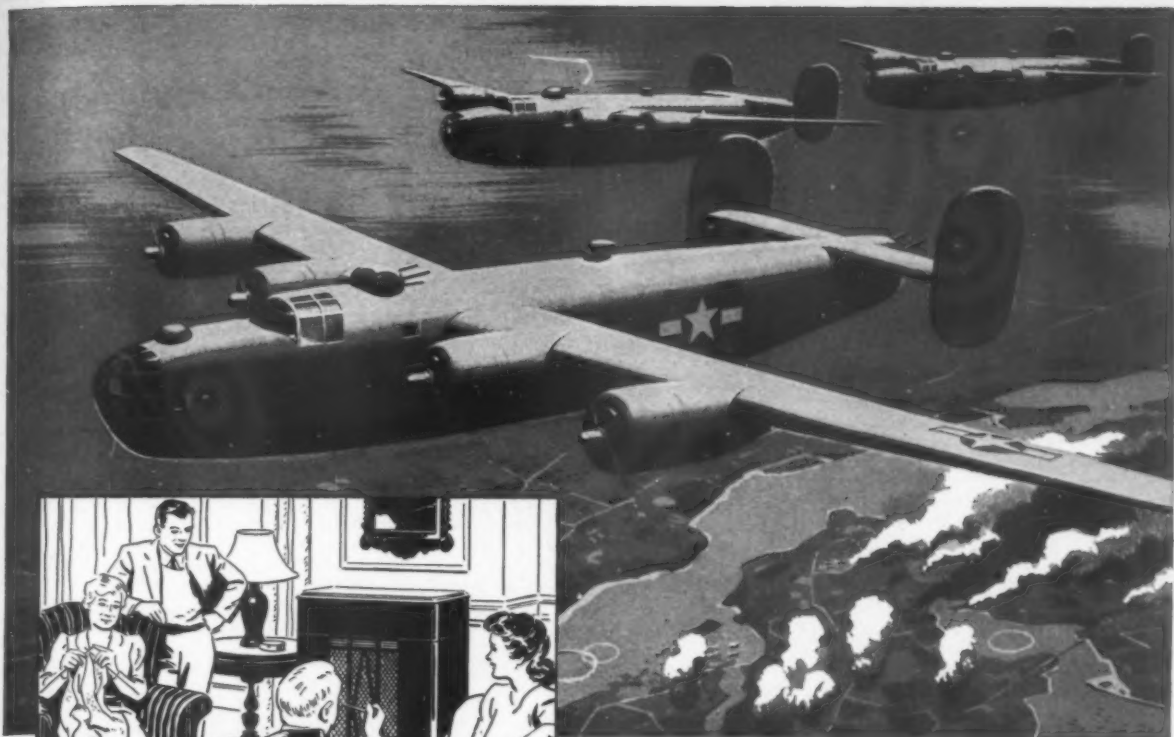
Halsey R. Bazley, president, All American Aviation, Inc.; T. E. Braniff, president, Braniff Airways, Inc.; Carleton Putnam, President, Chicago and Southern Air Lines, Inc.; Sigmund Janas, president, Colonial Air Lines, Inc.; T. C. Drinkwater, executive vice-president, Continental Air Lines, Inc.; C. E. Woolman, vice-president, Delta Air Corp.; R. Leferink, president, Inland Air Lines, Inc.; J. W. Miller, president, Mid-Continent Airlines, Inc.; G. T. Baker, president, National Airlines, Inc.; S. J. Solomon, president, Northeast Airlines, Inc.; Croil Hunter, president, Northwest Airlines, Inc.; C. Bedell Monro, president, Pennsylvania-Central Airlines Corp., and L. H. Dwerlkotte, executive vice-president, Western Air Lines, Inc.

THE 70-TON MARTIN Mars, world's largest flying boat, was turned over to the Navy Trial Board Nov. 2, following completion of the last of a series of grueling tests. Following verification of the test results by the board, the Mars will enter the Naval Air Transport Service as a "flying Liberty ship," carrying men and materials to distant war theatres.

On her last few company flights the Mars completed a 32 hour and 17 minute non-stop, non-refueling endurance flight during which the big flying boat traveled more than 4,600 miles—equivalent to a trip from Baltimore to Berlin and back to London—exceeding the international closed circuit distance record for seaplanes by approximately 50% and bettering three other official and seven unofficial records.

This was followed by a demonstration of structural strength. From an altitude of more than 13,000 feet the Mars' nose was pointed down in a power dive. When she pulled out, her accelerometer read over 3 g's (multiples of gravity)! This meant that her wings had withstood a load of 210 tons.

The two final Mars flights before her delivery to the Trial Board were devoted to two and three engine tests in which the big flying-boat showed that she could not only maintain altitude but actually climb with two of her four giant propellers fully feathered. In the two engine tests, both engines cut were on the same side, but the ship remained in perfect control at all times.



No Place Like Home

Compared with the typical home radio set—protectively nestled in a quiet living room—the electronic devices on a bomber lead a dog's life. Their delicate parts are subjected to the jarring concussion of exploding flak—the “kick-back” of bursting block-busters—the vibration of roaring motors and firing guns . . . a mauling severe for even the most rugged parts.

How these sensitive instruments are able to hold up under such bruising punishment is a story that dates back to the early days of automotive radio. Technicians of Delco Radio faced parallel problems—vibration, electrical interference, temperature and humidity extremes, bumping and jarring. They faced a set of conditions totally new and different in the radio field—the special conditions attending “radio in transit.”

One by one, these problems fell before the forces of research, experiment, ceaseless testing and trying. Automotive radio became

a practical, workable reality. And with success in this endeavor came a fund of special experience, off-the-trail knowledge, that has come in mighty handy in World War II. For Delco Radio engineers have applied their experience in automotive radio to the task of giving the forces of freedom—on land, at sea, in the air—a strong, clear voice. Delco Radio Division, General Motors Corporation, Kokomo, Indiana.

**Back Our Boys
By Buying Bonds!**

Delco Radio
DIVISION OF
GENERAL MOTORS

Rep. Luce Suggests New International Set-Up for Airlines

A new proposal for an international airline set-up, compromising the "chosen instrument" and "free competition" positions, was suggested to American Aviation last week by Rep. Clare Luce (R., Conn.).

Under the plan, suggested but not endorsed—as yet, at any rate—by the Congresswoman, there would be two airline monopolies, probably Pan American Airways and a company comprised of the 16 domestic lines, operating over different territory. One company, for example, could operate eastward over the Atlantic and the other westward, over the Pacific.

This plan, she pointed out, would: (1) retain the desirable characteristic of the "chosen instrument," namely, provide a unified American front with one strong instrument to meet foreign competition; and (2) embody the desirable feature of competition—the two companies, though not territorially in competition, would be in competition, at least as far as equipment, etc., are concerned.

The Congresswoman, whose maiden speech was on air policy and whose first-choice subject matter is aviation, is now mulling over proposals for the postwar airline set-up, said she thought it was the most important problem now on the aviation front since the matter of air policy has been tentatively settled.

But she has reached no conclusions. She is impressed with Pan American's argument for a unified American front to meet foreign competition. But, the arguments for competition also appeal to her.

The air policy which Prime Minister Churchill and President Roosevelt have informally agreed upon, she remarked, is in fact, although not name, about what she advocated in her maiden House address.

"I called it liberalized national sovereignty of air," she recalled, "the President's policy is called restricted free air."

At any rate, the Congresswoman, who can duly be credited with creating wide interest in air policy by dismissing Vice President Wallace's ideas on the matter as "globaloney," is satisfied, even relieved, that Wallace's "unlimited free air" arguments have not prevailed.

British Constructors Name Maj. H. R. Kilner President

The Society of British Aircraft Constructors recently elected Maj. H. R. Kilner, M. C., as president succeeding A. F. Sidgreaves, O.B.E., who has been president since November, 1941. After having served in the British Army from 1911 to 1930, Maj. Kilner joined the staff of Vickers-Armstrongs, Ltd., where he was appointed general manager in 1931. In 1936 he became a director and in 1940 transferred to the Aircraft Section. After a year he became director-in-charge. Maj. Kilner is also a director of Cooke, Troughton and Simms, Ltd. Sidgreaves will be deputy president of the society. H. Burroughes, a director of the Gloster Aircraft Co., has been elected vice president.

Return from Empire Meeting



H. J. Symington, president of Trans-Canada Air Lines, is shown signing an application for a Victory bond in Montreal last fortnight on his arrival from Britain and the recent Empire Air Conference by plane. C. D. Howe, Canadian minister of munitions and supply, looks on.

Plane Using 'Coal Gasoline' Completes Experimental Flight

The triumph of being a "first" was achieved by Rep. Jennings Randolph (D., W. Va.) when he completed the first flight to be made in the United States with a plane powered with coal-processed aviation gas on Saturday afternoon, November 6.

A large group of aviation enthusiasts were on hand to hail the plane, piloted by Maj. Arthur C. Hyde, Wing Commander of Civil Air Patrol for Maryland-District of Columbia, as it flew into Washington National Airport from Morgantown, W. Va. Stops were made at Cumberland, Md., and Martinsburg, W. Va.

Approximately 35 gallons of gasoline were processed from coal by the U. S. Bureau of Mines Experimental Station at Pittsburgh for the flight. The gas was about 85 octane.

Present cost estimate on the coal-processed aviation gas is five cents a gallon higher than that made from petroleum, but Randolph said that with further developmental work, it is expected the cost will be reduced so that it is comparable with petroleum-processed fuel. He also said that high octanes can be developed.

"The great reservoir for future fuels—including aviation gas—is coal," Randolph concluded.

N. Y. Port Authority Starts Planning for Trans-Ocean Traffic

"The coordinated efforts of all agencies will be needed to insure that the Port of New York realizes its potentialities as a major terminus for overseas and domestic air transport after the war," Frank C. Ferguson, chairman of the Port of New York Authority asserted last fortnight. "Cooperating with Federal, state & local bodies toward this objective, the Authority is inaugurating comprehensive studies in the air transport terminal field."

"To carry forward these new activities, Authority has added to its planning staff an air transport analyst, John Waller Wood, author of a standard reference work, "Airports", based on first hand study of over 100 airports in 20 countries. Wood has recently made special studies for the Aviation Assistant to the U. S. Secretary of Commerce. He has been a consultant for various Federal, county and municipal agencies, airlines and aircraft companies, and was co-designer of 2 technical schools for the AAF."

"There is no question that the Port of New York should be the major terminal for trans-Atlantic air transport, despite the claims of competing ports," Ferguson said. "Logic dictates that the major overseas services must make New York their terminus. Within the Metropolitan area and the territory it serves originates the great preponderance of high class passenger and freight traffic which will support fast, frequent and direct flights in overseas air service."

"About 70% of the pre-war overseas passenger travellers used the Port of New York. Approximately two-thirds of American citizens travelling abroad resided within the northeastern portion of the United States, over forty per cent in New York and New Jersey alone. Records of domestic air express revenues show that about one-fourth of all such traffic originates at or is delivered to New York."

"In addition to large central airports," Ferguson said, "we believe there will be need for numerous secondary airports throughout the port district. There should also be developed a series of offline union stations through which will function a co-ordinated system of pick-up and delivery for air freight and passengers. These will be located in the principal business centers and will be linked with the airports by fast highway transports, and perhaps helicopters."

The Authority's Planning Division is currently engaged in estimating air traffic potentials in relation to existing and proposed air routes and airports. Studies are being made of the pick-up and delivery problems of air commerce. The latter problem has a close relation to bridges, tunnels, arterial highways, transit lines, helicopter landing areas, and union offline stations such as the Authority's Union Inland Terminal No. 1, through which are now handled nearly 300,000 tons per annum of rail less carload and express package freight.

The Port Authority is also assembling data for presentation at Civil Aeronautics Board hearings on applications for airline routes to and from the Port of New York area.



Planes will be tailored to measure in the *Age of Flight*

In this war, there are scores of different types of planes, each designed for a particular kind of service. Among them are huge United transport planes, flying routes in this country and overseas on strictly military missions. . . . Other United planes, the famous Mainliners, are flying over the Main Line Airway, providing the fast, dependable passenger, mail and express service so vital to our fight for Victory.

How big will tomorrow's planes be? How many people will they carry? How fast will they travel? How far will they fly?

You will answer these questions. For planes will be built to suit your needs

and serve your purposes . . . practically "tailored to measure." Along the Main Line Airway, for example, there will probably be four basic types of service for passengers, mail and express.


There will be de luxe transcontinental flights between New York and the Pacific Coast, with huge airplanes making only one or two stops en route. Another type of coast-to-coast plane will serve major intermediate cities.

A third type will supply "feeder" service from nearby territory to division points along the Main Line Airway. Other planes will be especially designed to carry only cargo.

Present United Mainliners are, in a sense, tailored to measure for they rep-

resent the product of 17 years of airline experience. Their splendid wartime performance both at home and abroad attests the policy of building the plane to do the job at hand. And the steady advances in aircraft development which are taking place today will make transport planes even more efficient in the coming Age of Flight.

★ Buy War Bonds and Stamps for Victory

UNITED
AIR  **LINES**
THE MAIN LINE AIRWAY

House Turns Down Funds to Complete 24 Airport Projects

\$2,756,000 Additional CAA Appropriation O.K.

BY A SINGLE VOTE, the House defeated an amendment which would have provided the Civil Aeronautics Authority with \$6,756,918 to complete 24 half-finished airport projects throughout the country.

The amendment was pushed on the House floor, in connection with a deficiency appropriation bill, by a group of Congressmen having uncompleted ports in their home districts, after their attempt to get favorable action by the House Appropriations Committee failed.

A concerted effort will again be made, however, to get the airport funds tacked on to the appropriation bill in the Senate, Rep. Carl Stefan (R., Nebr.), one of the sponsors of the amendment, told *American Aviation*.

The 24 airports in question were started by Works Progress Administration and local governments. They are the "half-finished" batch remaining from the 267 which were uncompleted when WPA was liquidated. The Federal government has spent \$7,165,092 on work on these 24 projects, local governments, a total of \$3,051,025.

Of the 267 airports unfinished when the President ordered WPA out of existence, 71 were occupied by the Army and Navy for training and similar purposes, 67 were placed under the airport programs of the services, and others were finished with CAA funds.

The 24 communities with uncompleted airports feel they have been "left in the lurch" by the Federal government. They have pointed out to their Congressmen that they invested heavily in their airport project at the request of the Federal government and on the understand-

ing that the Federal government would see it through to completion, that until the airport is completed they have a small asset for their investment.

The Congress, on the other hand, is disinclined to appropriate funds not directly needed for the war effort at the present time. The possibility that the 24 airport projects will gradually be woven into the airport programs of the Army and Navy, was pointed out at hearings.

Last summer the Senate approved \$8,000,000 for the completion of WPA-started airports, but the House knocked the fund out. At that time there were 28 unfinished projects, four of which have since been finished by Army and Navy.

Congressmen who appeared before the House Appropriations Committee to ask for the \$6,756,918 amendment said:

Frank Keeffe (R., Wis.): "The sad part of the picture is, that despite . . . a large expenditure of funds, both Federal and municipal, we have not yet achieved an airport program because practically all of these ports are in such a state of incompletion as to not be permitted to be classified for the classification for which the ports were designed."

Clinton P. Anderson (D., N. M.): "These airports were not 'blindly' or arbitrarily selected. They are a part of an overall national airport program planned by the Department of Commerce. Many of the cities were selected to form a series of connecting links between transcontinental airlines."

Rep. Clare Luce (R., Conn.): "The citizens of Danbury (Conn.) seem to be unanimous in desiring completion of this

A supplemental appropriation of \$2,756,000 for the Civil Aeronautics Administration has been approved by the House.

The House Appropriations Committee sliced \$325,000 off the \$3,081,000 requested by the Administration which was to have been used to increase salaries of field forces.

The following description as to what CAA will do with the additional funds was given in the report to the House:

"Funds approved for the Administration include the installation of additional signaling and communications aids to air navigation and the operation of new apparatus of this type already installed or about to be installed in this fiscal year, the installation of additional teletype equipment in existing stations and connection of circuits with other stations, both in the military services and the CAA. Much of this equipment is of technical character and is deemed highly essential both by the armed services and the Department of Commerce in the interest of more safe navigation of the airways by military and civil aircraft. The amounts also provide for necessary rentals of commercial telegraph lines for transmission of these communications and weather reports."

airport project as soon as possible . . . During recent years there have been several bad crashes in this vicinity which might easily have been averted had we had a lighted field . . ."

Rep. J. Edgar Chenoweth (R., Colo.): "It is highly desirable that this municipal airport at Pueblo be completed at the earliest possible moment, as it is being used daily by our Army flyers as well as commercial air lines . . ."

Henry C. Dworshak (R., Idaho): "It is highly important that the Idaho Falls Airport be completed, because it is located within 50 miles of the Army Air Forces installation at Pocatello, Idaho, and is in demand for service by planes training out of the Pocatello base. At the present time a naval pilot training course is being established at Idaho Falls, so that even greater demands will be made upon the facilities at that point."

Oscar L. Burdick (R., N. D.) gave the Committee facts and figures from Fred J. Fredrickson, Mayor, Valley City, N. D., and pointed out that Valley City has spent \$37,783 on its airport, the Federal government, \$37,217. Valley City wants \$250,000 additional from the Federal government for its airport.

Hellcat Fights at 400 MPH

The range of the Grumman Hellcat is over 1,500 miles, its service ceiling is over 35,000 feet, and "it is in the 400 mile-an-hour class," the Navy reported last month. The report compared the Hellcat with the Vought-Corsair, both of which are powered by 2,000 hp. Pratt and Whitney engines.

"No enemy fighters or bombers will 'get on top' of the Hellcat," said the Navy announcement.

List of Uncompleted Airports

Twenty-four localities, extending from Maine to California and from New Mexico to Minnesota, had their hopes for a completed airport voted down by the House when it defeated a \$6,756,918 CAA appropriation. Following is a list of the 24 communities, giving the local investment in the airport, the Federal government's investment, and the amount needed to finish the port.

Locality	Local Investment	Federal (WPA) Investment	Needed
Merced, Calif.	\$122,617	\$312,769	\$250,000
Pueblo, Colo.	125,745	745,503	70,000
Danbury, Conn.	47,194	545,145	160,000
Idaho Falls, Idaho ..	192,126	344,969	358,000
Bloomington, Ind.	54,335	69,322	100,000
Des Moines, Ia.	830,000	1,600,000	800,000
Iowa City, Ia.	225,463	674,642	322,500
Pittsburg, Kans.	254,195	208,295	245,000
Dexter, Me.	14,418	264,529	100,000
Menominee, Mich.	58,619	60,000	130,918
Eveleth, Minn.	74,265	114,422	504,000
Hibbing, Minn.	96,684	660,923	240,000
International Falls, Minn.	44,530	46,403	325,000
Beatrice, Nebr.	70,016	73,172	416,000
Fremont, Nebr.	73,377	105,404	225,000
Raton, N. M.	52,470	210,000	235,000
Burlington, N. C.	50,000	140,000	475,000
Rockingham, N. C.	26,998	116,516	75,000
Valley City, N. Da.	37,783	37,217	250,000
Henderson, Tex.	97,400	64,500	200,000
Clarksburg, W. Va.	244,437	591,975	150,000
Eau Claire, Wis.	52,731	60,203	500,000
Oshkosh, Wis.	159,472	110,143	325,000
Siren, Wis.	46,160	9,040	300,000
Total	\$3,051,025	\$7,165,092	\$6,756,918

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Coming in on a Wing... and Douglas dependability

Operating from a U. S. Aircraft Carrier during the invasion of North Africa, an SBD Dauntless Dive Bomber Pilot flew into a tree while strafing an enemy tank. He damaged the propeller, tore the cowlings from one side, ripped the leading edge of the left wing at the root and slashed away the outboard end of the right horizontal stabilizer. In spite of this major damage, the plane returned to the carrier and made a perfect landing. Even as that pilot came in on a wing and Douglas dependability, so United Nations flyers throughout the world are safer while doing greater damage to the enemy because of the ruggedness Douglas men and women build into their planes.

PROGRESS REPORT... The 5,000th SBD Dauntless Dive Bomber will have been produced by the Douglas El Segundo Plant in November. On each of two successive recent months production was 45% ahead of schedule!

Douglas

AIRCRAFT COMPANY

Santa Monica, Calif.

Long Beach El Segundo, and Daggett, Calif., Tulsa, Oklahoma, Oklahoma City, Chicago
Member, Aircraft War Production Council, Inc.

Management Placed at Brewster by Navy Called Incompetent

Blame for Brewster Aeronautical Corporation's production failures was laid to incompetent managements installed by the Navy Dep. by witnesses before House Naval Affairs Committee during the past fortnight.

Last of the witnesses, Thomas V. De Lorenzo, president of the UAW Local 365, who has been charged with obstructionism, denied that his union was in any part responsible for Brewster's failures. He claimed they were due to:

(1) The fact that the firm produced six models in three years—more than the automobile industry;

(2) Stupidity on the part of individuals who handle production and labor relations and their failure to understand the labor contract;

(3) Frequent changes of management.

Questioning by Congressmen developed that De Lorenzo had picked his name "out of a phone book, because it sounded nice," but that he was born Harry Posner. Under strenuous examination by Rep. F. Edward Hebert (D., La.), De Lorenzo admitted he had lied about his name, his birth date, his police record and several other items in: (1) his application for a job at Brewster; (2) his petition to have his name changed; (3) an application for a post on the War Labor Board; and (4) his income tax returns.

Preceding De Lorenzo as a witness, James Work, founder of Brewster and its president until November, 1940, cleared labor's slate, claimed that all blame for the corporation's failures should go to the Navy-installed Reibel and Van Dusen managements.

The Navy, Work said, sponsored his resignation from the presidency of the firm because "it thought it could do a better production job than I was doing."

Until the Navy stepped in, Brewster "never had a strike or slowdown," Work declared. Base pay rates at Brewster were the same as at other aircraft firms, he claimed, and insisted that there was "no sell-out of management rights to keep wage rates down." Brewster's labor contract, which has been widely criticized as tying management's hands, Work insisted is "entirely beyond reproach and advantageous to Brewster."

Work expressed confidence in the new Kaiser management. "Brewster has a record of achievement in the past," he said, and "I look for great things from Brewster if management and labor are given a chance to work out their own problems."

Brewster was doing a successful job when he left the corporation, Work told Congressmen. Its business had jumped from \$1,000,000 in 1939 to \$27,000,000 in 1941 and the corporation was "making money," he reported.

Congressmen asked why the Navy deposed him if he was doing a completely satisfactory job. Work replied by pointing out that, although the corporation had successfully completed several of its Naval contracts for fighters, at the time the war broke out it was working on production of an experimental dive bomber. As in all similar cases, he continued, advancement was not as rapid as desired and the Navy thought they could improve. In addition, he said, there was conflict between labor and management

Confer on Aircraft Parts



Col. Bryan Houston, chief of contracts termination, Army General Staff, is shown conferring with T. T. Arden, president of Aircraft Parts Manufacturers' Association, during meeting with representatives from 50 Los Angeles parts companies.

Postwar Adjustment Problems Listed by Truman Committee

The Truman Committee, which has been completely occupied with problems of the war program to date, shifted last week and pointed out to the Senate, in a formal report, the stupendous problems of peacetime adjustment confronting the nation.

The report recommended no "short cut" solutions, instead listed the problems and emphasized their many ramifications.

The aircraft industry, the report stated, "which has grown from a very small industry to a very large one . . . will have to have large sums for working capital, if it hopes to enter postwar competition with other major industries in the United States."

Aircraft companies should not be allowed excessive profits during the war to handle their postwar problems, the report maintained, but instead, the Federal government must be prepared to supplement private banking. "Some agency such as the Reconstruction Finance Corporation will have to be ready to provide working capital quickly to worthy business corporations which would otherwise not be able to obtain it."

Conversion problems described and discussed in the report included: termination of war contracts; disposition of war inventories; disposition of surplus war materials; removal of government property from private plants; necessity of providing working capital for business; acquisition of government-owned plants and facilities; international complications; labor in the postwar; public works program.

in the plant—but nothing more than the usual management versus labor situation.

Seven Types of Plane Now in ATC Service; 8th 'Coming'—Harris

The Air Transport Command's worldwide cargo fleet now comprises seven types of plane, with an eighth soon to be added, Col. Harold R. Harris, assistant chief of staff for ATC operations, revealed last month. In an address before the Institute of the Aeronautical Sciences in Washington, D. C., Harris listed the following types of plane now in use by the ATC:

1. Douglas DC type.
2. Douglas C-47.
3. Boeing 314 Clipper.
4. Boeing Stratoliner.
5. Douglas C-54.
6. Consolidated C-87.
7. Curtiss C-46 Commando.

"Just a passing word for the Lockheed Constellation," Col. Harris added. "This new four-engine transport, the largest yet designed for the job, is coming along. As yet unproved, it has great possibilities and may soon play an important part in the military transport picture."

The Douglas DC type "still forms a most important part of the ATC fleet." The Boeings "are adaptable to long range flying and have been assigned specific tasks of appropriate type, particularly for long over-water hops," he said.

"With long range and efficient load carrying capacity, the C-54 has played an increasingly important role on the long ATC international routes. The C-87 is daily compiling an enviable record of non-stop long range transportation, and has done a fine emergency transport job. The Curtiss Commando C-46, regardless of appearance, can be expected to deliver the goods."

Col. Harris revealed that all ATC cargo aircraft are now being equipped with a new tie-down system utilizing vertical steel bars to which horizontal cross members can be anchored over the top of the cargo.

"This is a positive method in which locks slip down over the bars and are jacked down over the cross members," he explained. "The jacks are simple, but powerful, and insure ample pressure on the cross members resulting in cargo being firmly secured. Vertical bars are hooked in floor rings anchored to the airframe structure."

He paid tribute to the "fairly generous supply of personnel, equipment, facilities, and vital 'know-how' in our commercial airlines, to whom we (the ATC) turned in our country's hour of need."

He lauded the "generous number of former airline executives and pilots who traded their plaid suits for brown, rolled up their sleeves and went to work on the biggest air transport job yet attempted."

Now—An AAFTAC

An Army Air Forces Tactical Center, dedicated to large-scale teaching of the lessons of air war as learned in actual combat, has been set up in central Florida under the command of Brig. Gen. Hume Peabody, the War Department announces. The new organization, based at Orlando, Fla., occupies more than 8,000 square miles and includes the Army Air Forces School of Applied Tactics, an air defense wing, a strategic bomb group, a complete tactical air force, a troop carrier squadron, and a weather squadron.

Exploring the Aerial Arctic



Above: B-25 test airplane with water-spray outrigger for inducing ice.

Constant study of ice prevention and elimination is one of the many phases of Curtiss Propeller flight research.

Curtiss
ELECTRIC PROPELLERS

Curtiss-Wright Corporation • Propeller Division



Kodachrome photographs of feathered Curtiss Electric Propellers at 20,000 feet record the ice formations.



Outward Bound!

A "Dauntless" takes off on **AEROLS***

Nemesis of the nipponese navy, the Douglas "Dauntless" is one of the world's hardest hitting dive bombers.

Because this outstanding plane is equipped with Aerols, it performs with effortless ease the exacting job of taking off or landing on an aircraft carrier.

Aerols for the "Dauntless" and other aircraft are pouring in ever increasing quantities from our production lines. Our new plant is the largest in the world solely devoted to the manufacture of this essential aviation product.

CLEVELAND PNEUMATIC AEROL, INC.

Wholly owned subsidiary of The Cleveland Pneumatic Tool Co.

EUCLID 17, OHIO



*THE SHOCK ABSORBING UNITS ON AN AIRPLANE'S LANDING GEAR; THE NAME IS DERIVED FROM THE WORDS "AIR" AND "OIL"—THE FLUIDS USED TO DISSIPATE THE LANDING SHOCKS

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Four Basic Types of Postwar Plane Are 'On Paper' at ATA

By GERARD B. DOBBEN

SOME OF THE GENERAL characteristics of cargo and passenger planes of the future are taking shape today because forward looking leaders in the air transport field, working as a Committee on Aircraft Requirements of the Air Transport Association of America, are periodically sitting down at a conference table to discuss what an aviation minded nation will require in the postwar era.

Four basic types, designed to cover the general range of short haul passenger and cargo requirement to the luxury passenger sleepers for inter-continent, trans-oceanic service, are now "on paper" and will soon be ready for the eyes of the aircraft manufacturer.

The Aircraft Requirements committee, headed by William Littlewood, vice president of American Airlines, Inc., in charge of engineering, met for two days late last month in furtherance of the objective to unify the thinking of the air transport industry along lines which will permit certain standardizations in manufacture of both planes and interchangeable units. Other members of the committee are: Stanley Shatto, vice president, Continental Airlines; Charles Froesch, chief engineer, Eastern Air Lines; Karl O. Larson, Engineer, Pan American Airways; Jack C. Franklin, vice president, TWA; William C. Mentzer, chief engineer, United Airlines and B. J. Vierling, Pennsylvania-Central chief engineer and superintendent of maintenance.

General Characteristics

A description of the general characteristics of each recommended type follows: ATA-A1: Intended to haul passengers, passengers and cargo or cargo only where distances are short between scheduled stops. Would use airports more restricted than those now accommodating Douglas DC-3s. Seating capacity for 25 to 30 passengers with 1,000 to 2,000 pounds cargo capacity, with conversion in stages to carry at least 7,000 pounds of cargo. Normal crew of two flight officers and one cabin attendant. Must have maximum operating economy, with substantial improvements in maintenance provisions over existing airplanes. Landing gear will be of the nose wheel-tricycle type. Basic safety for passengers and crew must be equivalent to present requirements. Ground time requirements must be minimized.

General passenger provisions: Subject to justifiable weight penalty, provisions shall be made to permit change of the ratio of passengers to cargo space. Passenger space should be changed from minimum to maximum or vice versa with maximum elapsed time of 20 minutes and any proportional changes in corresponding length of time. Sufficient passenger seats to accommodate passengers and their baggage constituting 85% of allowable pay load for an absolute range of 500 miles. Number of seats permanently installed shall be such as to permit accommodations of cargo constituting 100% of allowable pay load for absolute range of 500 miles. Minimum clearance between floor and ceiling shall be 78 inches at the aisle.

Baggage Provisions: An effort will be made to permit passenger to handle his own luggage. Conventional method of checking all baggage, except unusually heavy pieces, should be changed. Baggage storage provisions within the cabin to accommodate 30 pounds and 3.0 cubic feet of baggage for each of the maximum number of passengers.

Cargo: Minimum usable cargo space when all seats are occupied shall be 150 cubic feet with a minimum of 40 square feet of usable floor area. Usable cargo space from level portions of floor to height of not more than six feet. Consideration should be given to locating accessories and radio equipment in the belly of the fuselage. Density of cargo shall be six pounds per cubic foot. Floor supporting structure subjected to cargo loading shall be capable of withstanding uniformly distributed loading of 240 pounds per square foot. The flooring itself shall be capable of withstanding loading of 200 pounds per square foot uniformly distributed. Special provisions for facilitating loading and unloading of cargo and the securing of cargo in place. Cargo loading door approximately 54 inches wide and 72 inches high is believed necessary.

Performance: Cruising speed at maximum gross weight, 60% meto power and 5,000 feet altitude shall be at least 200 miles per hour. Minimum operational ceiling with one engine out and maximum gross weight (per CAR 048) shall be at least 10,000 feet. Minimum length of airport runway, on which takeoffs and landings at maximum gross weight must be

Sky Bums

Skybums Flying Club, Inc., has been incorporated in the state of Washington "for the purpose of education of its members in the art and science of flying." The firm of Lycette, Diamond & Sylvester, Seattle, filed the articles of incorporation.

made at sea level under standard conditions, shall be 2,500 feet. Minimum range at 5,000 feet, 60% meto power, 10 miles per hour head wind, no fuel reserve and maximum gross weight shall be 800 miles. Provision shall be made for operational installation of additional fuel tanks for an additional range under above conditions of at least 700 miles. The minimum pay load (passenger and/or cargo) with fuel for absolute range of 500 miles at 5,000 feet, 60% meto power and 10 miles per hour head wind shall be at least 7,000 pounds. Short range operation dictates a minimum spread between allowable take-off and landing gross weights.

The manufacturer shall furnish permissible takeoff and landing weights in accordance with CAR 048 for variations of the principle factors for the following ranges: (a) Density altitude 2,000 feet below sea level to 10,000 feet above sea level; (b) Runway length 2,000 to 10,000 feet; (c) Wind speed 10 miles per hour tail wind to 50 miles per hour head wind; (d) Runway inclination plus or minus 2% grade; (e) Runway surface variations from sand to concrete. These data shall be presented in multiple curve form.

Balance requirements: It is particularly desired that better inherent balance characteristics be provided than have been (Turn to page 48)

'Teepee' Developed by Bell Aircraft



No longer must a trainee burn his britches on the engine behind the pilot of a P-39 during instruction flights. Bell Aircraft Corp. has converted the Airacobra into a two-place trainer at the request of the Fourth Fighter Command and the Fourth Air Force by removing the 37mm. cannon, fuselage machine guns, and gun cowlings, and extending the plexiglas cabin enclosure forward, as shown above. The second pilot's place is equipped with a full set of controls and a simplified instrument panel. Maj. William Angus of the Flying Safety Division, Army Air Forces, (right), tries out the 'teepee' while Robert M. Stanley, Bell's chief test pilot, watches.

DPC Has Bought One-Fifth Of All U. S. Civil Planes

DEFENSE PLANT CORPORATION, a United States Government body, has purchased 5,165 civil airplanes up to and including October 7, and is still in the market buying, it has been revealed.

With approximately 25,000 civil airplanes licensed before the war, the government has purchased more than one-fifth of them to date. All or most of the planes are being used in the War Training Service program which embraces a total of 7,079 craft. The remainder consists of 1,443 owned by contractors, 59 given by the Navy, and 412 on loan from the Army.

Buying of civil aircraft started early in the year and much of the buying had been accomplished by summer. By July 1, 4,275 planes had been purchased. Disposition of the planes after the war is an unknown factor.

Here is a sample of the buying for a two-weeks period, July 1-17, when 731 planes were purchased:

Piper	348	Meyers	9
Aeronca	111	Fleet	3
Waco	81	Cessna	2
Interstate	22	Stinson	52
Taylorcraft	41	Rearwin	4
Fairchild	14	Beechcraft	3
Porterfield	22	Spartan	2
Luscombe	15	Howard	1
Curtiss-Robin ..	1		

Models range from relatively new to rather old. Biggest purchase of any one model was the Piper J31-65. How long

Twin Cities NAA Chapter Views Prospect of Flying Minnesota Goods to Market

A study to determine which industrial and agricultural commodities produced in Minnesota are most adaptable for air transportation is being undertaken by the Greater Twin Cities chapter, of the National Aeronautic Association, according to Lowell H. Swenson, president of the Minnesota Council of NAA.

Swenson has named Charles D. Pyle, president of Great Western Warehouse, Inc., of Minneapolis, as chairman of the Air Traffic Committee which will undertake this survey.

Every factor that influences the shipper in determining the best, speediest and most economical way to ship his product will be studied. The sub-committee will seek to measure the potential market for personal airplanes which will exist in Minnesota communities after the war. In addition air passenger requirements of the state as bearing on the location, size and type of airports and institution of feeder line services will be surveyed.

The Air Facilities sub-committee of the Air Traffic committee is planning to examine all applications on file with the Civil Aeronautics Administration which would extend new airline services to Minnesota terminals or expand existing services. Based on information so obtained, the committee will then recommend to the Association the work which should be done in support of these new route requests.

the plane purchasing program will continue is not known, but it appears obvious that if these 5,165 airplanes are scrapped or sold abroad, or taken out of domestic service through one means or another, there will be a very plentiful postwar market for new models and types immediately after the war. In the meantime they are leased back to the WTS contractors.

8c Air Mail Postage Rate Proposed by House Committee

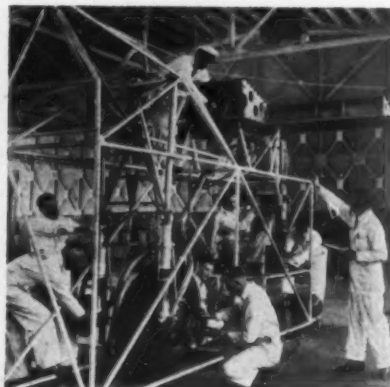
The House Ways and Means Committee, searching for new sources of revenue to finance the war program, had decided as this issue went to press to increase air mail postage to 8c an ounce.

Earlier, the committee had proposed raising air mail postage from 6 to 10c, but finally dropped it back to 8c. Similarly, an increase in first-class postage to 4c was reduced to the present 3c rate.

Whether the 8c air mail rate will remain by the time the tax measure gets through the House and the Senate could not be foretold as this issue went to press. The proposed 10c rate met with considerable opposition, both in industry and government circles. There is also opposition to the 8c rate.

Officials felt that a 10c rate would mean less revenue in the long run, because use of air mail would be materially reduced. They also pointed out that the large air mail rate increase was unfair when first-class postage was not to be jumped, and that the increase would penalize the large number of servicemen using air mail to correspond with their families.

Hydraulic System Mockup



This new mockup of the complete hydraulic system of a United Air Lines' 'Mainliner' has been developed by the airline for training in repair and maintenance at its Chicago school for mechanics' helpers.

Reuben H. Fleet Named President of Institute

Maj. R. H. Fleet, former head of Consolidated Aircraft Corp., now Consolidated

-Vultee, was elected president of the Institute of the Aeronautical Sciences for 1944 at the organization's recent convention in Hotel Statler, Washington, D. C. He will succeed Dr. Hugh L. Dryden of the United States Bureau of Standards.



Fleet

Fleet is an aviation pioneer. After resigning from the Army in 1923, with the rank of major, he organized Consolidated. He remained its president until 1941 when he sold his interest to Vultee Aircraft, which eventually became Consolidated-Vultee Aircraft Corporation. He has continued with the company as a consultant.

Chilean Air Minister Says Planes Acquired from U. S. Are Protecting Vital Mines

Lend-lease equipment received by Chile is being used exclusively for the defense of the republic and the Western Hemisphere, Gen. Manuel Tovarías, Chilean air minister, said in a recent interview in Washington.

He emphasized that patrol planes acquired from the United States under lend-lease agreements are being used to patrol strategic coastal areas along the country's 2,653 miles of coast. Moreover, he said, they are protecting vital copper and nitrate centers along the Pacific from possible attack. The importance of these mineral sources to the United States war effort is shown by the fact that Chile is expected to supply the United States with 25% of its copper needs this year, he added.

One of the country's chief air problems, he said, is the training of aviation personnel. This problem is being solved by expanding the facilities of Chile's air cadet school, patterned after similar training centers in the United States, and the acquisition of training planes under lend-lease, he added.

While in this country, Gen. Tovarías toured war factories, air force installations, and other military centers.

More Pennsylvania Airports

The Pennsylvania State Aeronautics Commission has listed more than 300 Pennsylvania communities which will receive commercial air service for the first time when the commission's aviation program gets underway. The program calls for construction of 70 new airports and expansion of 13 others.

The Light that MUST NOT FAIL



Pull . . . Pull . . . Slide . . . Pull and pull again. So it goes, as yards of silken safety chute pass over a frosted glass window. Through it, a powerful light blazes while keen eyes search every stark detail of triple-stitched seams, alert to detect any dropped stitch, break or snarl. This is a light that must not fail . . . for here, truly, life hangs on a thread. ☆ ☆ ☆ Switlik workers are exceedingly proud of their contribution to the jumper's serene confidence during those moments of literal "suspense" between plane and earth. ☆ ☆ ☆ The skill these craftsmen have developed is a tribute to Switlik engineering methods in designing "the best parachute that can be made" . . . and setting new records, as well, for production and delivery of this Switlik Safe-T-Chute. ☆ ☆



*Air Power is winning the war
... The more Bonds you buy
... the more hours they fly!*

SWITLIK PARACHUTE COMPANY
Trenton, New Jersey

Army Issues First Statement On the B-29 'Super-Bomber'

THE WAR DEPARTMENT last fortnight issued its first formal statement regarding the B-29 super-bomber but gave only sparse details pending actual use of the plane in combat. The release, quoting Gen. H. H. Arnold, Commanding General of the Army Air Forces, said:

"The B-24 Liberator, pioneered by Consolidated, and the B-17 Flying Fortress, pioneered by Boeing, are super-bombers on the basis of their superb combat records.

"We now have a third super-bomber, which is as far ahead of those two aircraft as they are out in front of pre-war bombers. It is the B-29, developed by the Boeing Aircraft Co. in close cooperation with the Army Air Forces and its materiel command and evolved in secrecy during the past several years.

"The engineering of the B-29 design was accomplished by the Boeing Company's large engineering staff at Seattle, Wash., which originated and developed the B-17 Flying Fortress. First experimental models of the B-29 were built at Seattle. Engineering and production information has been turned over to other major aircraft manufacturers, who also will produce the plane through final assembly, and to other industrial concerns which will handle sub-assembly or parts production.

"This battleship of the air is armored heavily with multiple-gun and power turrets. It can fly at very high altitudes.

"Its performance will not be discussed before it enters combat. However, the B-29 will have a range substantially greater than the maximum effective range of today's longest-range heavy bombers and it will carry quite sizeable bomb loads for that distance.

"When it enters combat, today's long range will become medium range and today's heavy bombers will consequently become light heavies.

"Even under the impetus of war, many months must elapse between the adoption of a plane type and its entry into combat. These months are needed for development, to prepare for production, to increase production, to train personnel, and to iron out the bugs inherent in all new types. Eventually, however, sufficient planes and crews are ready to give the weapon its final test—under combat conditions. That final test of the B-29 is not now far distant.

"It should be made clear that production of B-17s and of B-24s will not be affected by advent of the B-29. Production of those two bombers is being increased steadily."

Lockheed Concentrates on P-38; New Production Method Adopted

TO SPEED PRODUCTION of P-38 Lightnings, Lockheed Aircraft Corp. will concentrate practically its entire facilities on the fighter, and a new production method in farming out components of the plane to other aircraft structure manufacturers has been adopted.

According to the Western Procurement District, AAF, Materiel Command, the new farming process should result in double the present output. The AAF explained the program as follows:

"When Lockheed was first called upon to step up production of Lightnings, the situation was anything but encouraging. The Burbank plant was already working at capacity and could not accommodate additional personnel, even if workers had been obtainable. Expansion of plant facilities was also out of the question, not only because of the manpower shortage but also because of the time element involved.

"Accordingly, a study was made to find which components of the plane could be farmed out to other aircraft structure manufacturers, without interrupting the flow of such parts at Burbank. When this was determined, the Materiel Command, Wright Field, was asked to submit a list of open capacities of such manufacturers throughout the country.

"Manufacturers on this list were contacted and negotiations were started to spread production wherever feasible.

"Meanwhile, one of the first components was subcontracted to a local firm to establish a modus operandi. It was decided that, although the first contract would not aid the local manpower situation, it would be helpful in relieving the pressure at the Lockheed plant and in making possible the adoption of a standard operational procedure.

"The local firm contracted to make the leading edges for the P-38 and made plans to go into immediate production. Inasmuch as Lockheed had previously manufactured such principal components in its own plant, no outside liaison organization existed as far as aircraft structures were concerned. It was highly necessary that one be established since the shifting of principal aircraft structure components to another plant involves close engineering liaison, the transfer of tooling and a certain amount of fabricated parts in the early stages, the computing of flow time both for fabrication and shipments, and the scheduling of critical parts. Moreover, it was felt that experience with a local organization would be of value before reaching out toward the East.

"Negotiations are now being carried on for other items.

"Prominent among these is the complete power plant sub-assembly. It is intended to place this unit with an Eastern firm experienced in sheet metal fabrica-

Aeration: New Engine Ailment

Severe war service has developed a new engineering ailment known as oil aeration, or foaming, R. J. S. Pigott of Gulf Research & Development Co., Pittsburgh, revealed at the National Fuels and Lubricants Meeting of the Society of Automotive Engineers in Tulsa, Okla., Nov. 4. Pigott called for more attention to hydraulics in designing oil supply systems.

tion and assembly. This sub-assembly will consist of the engine, engine mount, all accessories. All mechanical devices pertaining thereto will be thoroughly tested so that when the unit is received by Lockheed on a special carrier, it can be readily attached to the airframe.

"It is estimated that the power plant, if contracted for elsewhere, would save Lockheed in the neighborhood of 5,000 employees. The next component in order of importance under consideration is the wing center section which is equal in importance to the power plant.

"It is apparent that when these schedules of subcontracting are in full operation, Lockheed, at Burbank, will be more of an assembly plant than it is at present.

"Under the new set up, AAF officials believe the plant will be able to double the output with less effort than is now being expended to produce at the present rate. In fact, they have so much confidence in the plan that they are now working out similar arrangements with other local airframe manufacturers."

Lockheed officials explained to *American Aviation* that the expanded P-38 program means curtailment but not suspension of the Constellation program.

"At no time were there a large number of workers on the Constellation," said a company statement.

Production of the Lodestar is temporarily suspended, the statement added.

Barnum Heads AAF Office of Technical Information

Jerome D. Barnum, former publisher of the *Syracuse (N. Y.) Post-Standard*, last fortnight was appointed by the War Dept. as chief of the Office of Technical Information of the Army Air Forces. Eventually he will have a staff of 10 officers and 10 civilians, with headquarters in Washington, D. C.

The office collects and distributes specialized information concerning the Air Forces and acts in an advisory capacity to the commanding general and his staff on public relations policy. Barnum will be in effect, principal public relations adviser to Gen. H. H. Arnold, commanding general of the Air Forces.

Barnum's appointment makes no change in the AAF public relations group headed by Col. William Westlake as assistant to the director for the Army Air Forces bureau of public relations. Barnum's OTI will not have direct contact with the press.

Airport Ice Control Discussed

"Ice Control for Airport Runways" is the title of a new information sheet issued by the Calcium Chloride Association. The publication deals with this problem of winter hazards and the techniques to be followed to overcome dangers occasioned by airport ice.



Back the Attack—With War Bonds

Nerve system

Dodging through flak, or slashing through vicious swarms of enemy fighters, the Boeing Flying Fortress* seems a *living thing* . . . its every movement controlled by a nerve system not unlike that of the human body.

This system is made up of more than 5000 separate electric wires, totaling in length more than *six miles*.

Formerly, these metal nerves—many of them strung in conduit—were installed wire by wire as the bomber neared completion. But with America's desperate need for more and still more Flying Fortresses, Boeing engineers sought a faster,

simpler method. First, they devised a way to eliminate the conduit. Then they divided the wiring system into simplified subassemblies, in each case mapping out the course of the wires on a template like the one pictured above.

Today these subassemblies—reduced to 26 in number—are wired quickly and accurately *in advance* of installation . . . largely by unskilled women who couldn't even fix a broken light switch in their own homes!

Each unit is pre-inspected, and then installed in its proper section. In final assembly, the Fortress sections are joined

together and the wiring subassemblies are connected quickly and accurately by numbered plugs.

So successful is this method that it has been adopted by other airplane companies, including Douglas and Vega who are also building Boeing Flying Fortresses under a whole-hearted co-operative program to help speed Victory!

Some day Boeing research, design, engineering and manufacturing skills will be turned once again to peacetime products for your use. And it will be notably true then, as today, of any product . . . if it's "Built by Boeing" it's bound to be good.

DESIGNERS OF THE FLYING FORTRESS • THE STRATOLINER • PAN AMERICAN CLIPPERS

*THE TERMS "FLYING FORTRESS" AND "STRATOLINER" ARE REGISTERED BOEING TRADE-MARKS

BOEING

Railroad Association Plans \$1,435,000 Publicity Outlay

Will Aim Advertising At Younger People and Womens Groups

STRIVING to offset the trend of business moving away from the railroads to air transport, the Association of American Railroads has mapped out an expanded \$1,435,000 advertising and public relations program for 1944, it is learned by *American Aviation*.

Especially significant in the railroad plans is the aiming of a large part of its publicity program directly at younger people and women, among which groups there is found the strongest trend toward the newer field of aviation.

Railway Journal Cites Subsidies to Airlines In Jab at Wallace

That railroad interests will continue to use subsidies to airlines as one of the principal arguments for permitting surface carriers to enter the air realm is indicated by response to the Dallas, Tex., speech of Vice President Henry Wallace in which he charged the railroads were plotting to gain monopolistic control over air transport (*American Aviation*, Nov. 1).

Railway Age, in an editorial on the Wallace speech, said:

"He charged the 'transportation monopoly' with preventing, or trying to prevent, the public from enjoying 'cheap' transportation by inland waterway, highway, and air. Total costs of providing transportation service by each of these other means are much greater than by rail. Otherwise, why have they had to be subsidized by billions of dollars of government spending to enable them to compete with the railways in the past, and why are they now propagandizing for billions more of subsidies to help them compete with the railways after the war?"

"Mr. Wallace, as a means of increasing competition in transportation, advocates legislation to prevent railway companies from operating carriers by water, highway and air in competition with other companies. It is something new in logic to thus advocate restriction of competition as a means of increasing it.

"The railways can hold their own and prosper in equal and free competition with all other classes of carriers. But competition is not equal when all classes of carriers excepting one are subsidized, or free if all excepting one are allowed to make whatever rates they require to take traffic, while that one is not allowed to make whatever rates it requires to hold traffic."

Total recommended advertising and public relations budget for the year is \$267,203 more than was set aside for these purposes in 1943.

In a report to the members of the AAR Advisory Committee on Public Relations, Robert S. Henry, assistant to the president, pointed out that a survey of what the public thinks of the railroads just completed by the Opinion Research Corp. found that "the American people have renewed their confidence and pride in their railroads."

Cites Complaints

At the same time he said, "It is disturbing to find in the same report that an average of almost two and one-half persons in each coachload of passengers have voluntarily complained of either indifference or rudeness, lack of cleanliness in the coach, or some other shortcoming in the personal service accorded them."

"It is disturbing to note, also," he said, "that relatively railroads stand less well in the esteem of young people than of the more mature—especially when it is realized that 2,500,000 young people are growing up to working age each year. There is likewise a relative lack of understanding and appreciating of railroads on the part of women."

Outlining the proposed program for next year, Henry characterized it as "looking to the future, as well as to the preservation of present good opinion."

He proposed:

"1. That substantially the present activities in public relations work as distinguished from formal advertising, and substantially the present schedule of advertising in general magazines and farm journals be continued. Whatever more may be done, the first recommendation is that this tested program be continued along substantially present lines.

"2. That in advertising and other public relations activities, we project the idea that railroads, along with other lines of enterprise, will have a share in the anticipated progress of the future.

"3. That in so doing, some of the AAR magazine advertising of 1944 be published in full color. This is recommended as a means of more effectively presenting the idea of railroads as a progressive force in the future; as a means of more effectively competing for attention with the increasing use of color by other advertisers; and as of special appeal to younger people and women.

Would Reach Teachers

"4. That advertising schedules in magazines circulating among teachers and young people be enlarged.

"5. That advertising be undertaken in a limited list of magazines having relatively large readership among women, and that special efforts be made to place the facts about railroads before women's organizations interested in public affairs."

Henry told his advisory committee that "to preserve the present high esteem in which railroads are held, and to carry it over into the difficult days ahead, is

Top Railroad Men Will Ask for Postwar Talks With Airline Officials

The Association of American Railroads has appointed a committee of top railroad officials to talk with airline officials about postwar transportation. So far as is known, no approach has yet been made to airline executives or companies and the general objects of the discussions are not known.

Heading the committee is F. E. Williamson, president of the New York Central. Others are: E. S. French, president of the Boston & Maine Railroad; R. B. White, president of the Baltimore & Ohio Railroad; M. W. Clement, president of the Pennsylvania Railroad; E. E. Norris, president of the Southern Railroad System; C. Mc. Davis, president of the Atlantic Coast Line Railroad; J. L. Beven, president of the Illinois Central System; E. J. Engel, president of the Atchinson, Topeka & Santa Fe Railroad System; L. W. Baldwin, chief executive officer, Missouri Pacific R. R. Company; William Jeffers, president of the Union Pacific, and Ralph Budd, president of Chicago, Burlington & Quincy Railroad.

going to require more direct and intensive effort by the whole industry, including greater attention to specific advertising and public relations activities."

He broke the budget summary for 1944 down into the following: advertising in general magazines, \$795,265 and in farm magazines, \$236,438; production, \$60,500; production, services and activities in public relations work, \$228,000; public relations administration, \$115,000.

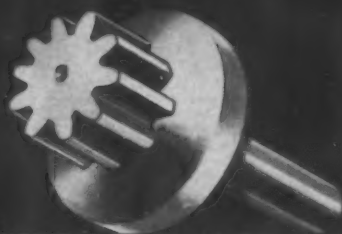
He listed a group of eight teachers' and youth magazines for each of which six insertions are proposed during the year at a total cost of \$57,171. Farm publications will call for an advertising outlay of \$231,438.

Here's 1944 Schedule

Following is the railroad association's proposed 1944 advertising schedule in general magazines:

Publication	No. of Total Insertions	Cost
Life	13	\$124,800
Saturday Evening Post	13	110,500
Collier's	13	91,000
Look	12	55,900
Time	13	40,755
Liberty	13	27,300
Newsweek	13	22,300
U. S. News	13	17,225
Business Week	13	12,610
Nation's Business	12	21,600
New Yorker	13	14,625
National Geographic	6	19,200
Atlantic	12	7,500
Railway Age	13	3,720
Traffic World	13	2,015
Railroad Magazine	12	1,900
Trains	12	1,530
Editor & Publisher	13	2,860
American Press	12	1,300
National Publisher	12	1,200





\$579,954



Gulf Super-Quench

solves another heat-treating problem—

Here are the results on gears of a prominent machine tool manufacturer:

-  **1 Gear hardness increased from 35 Rockwell C to 44 Rockwell C**
-  **2 Soaking time in cleaning bath reduced from 30 minutes to 5 seconds**
-  **3 Hand brushing and cleaning operation eliminated**
-  **4 Substantial increase in production**

You tap a new source of greater production efficiency when you put this revolutionary new quenching oil on the job in your plant

A large machine tool manufacturer, securing only 35 Rockwell C hardness on spur gears with a conventional quenching oil, adopted the recommendations of a Gulf Service Engineer to use Gulf Super-Quench.

This revolutionary new quenching oil quickly dem-

onstrated its super quenching power. Rockwell C hardness was increased to 44. In addition, bath cleaning time was reduced from 30 minutes to 5 seconds—and a subsequent hand cleaning operation was eliminated. Another tough heat-treating problem solved and production stepped up with the help of Gulf Super-Quench!

It will pay you to investigate this remarkable quenching oil—call in a Gulf Service Engineer and let him demonstrate how it can help you improve your heat-treating practice. For your copy of the new brochure on Gulf Super-Quench, send the coupon below.

For Victory—
buy United States
War Bonds
and Stamps



Gulf Oil Corporation · Gulf Refining Company AA
3800 Gulf Building, Pittsburgh, Pa.
Please send me, without obligation, a copy of the new brochure, "Gulf Super-Quench."
Name.....
Title.....
Company.....
Address.....

WLB Airframe Panel Set up; Long Time Lag Irks Industry

Some Voluntary Wage Cases Not Acted On in 10 Months

THE long-awaited War Labor Board Airframe Panel established to handle all industry dispute cases, held its first meeting in New York, Nov. 8. With a backlog of only 12 cases it seems reasonable to expect prompt action and settlement of the entire docket.

Industry spokesmen now express concern, however, at what appears to be incredible slowness in the Wage Stabilization Division which handles voluntary cases. Of the 70 airframe cases on file, 25 involve major decisions, such as overall plant wage structures and incentive plans.

Acting industry member of the Airframe Panel is John Meade, labor relations representative of Bell Aircraft Corp.; but Board members and the industry have so far failed to agree on an acceptable permanent representative. Thomas L. Norton, professor of Economics at the University of Buffalo, is chairman and public member. Labor representatives are Garry Cotton of Los Angeles, Grand Lodge representative, IAM-AFL, to handle cases involving the Machinists union and Ed Hall, of Cleveland, International Representative of UAW-CIO, to participate in UAW cases. Even without the permanent industry member, procedures have been determined and the Panel has begun operations.

The majority of airframe cases filed are not disputes between company and union, but come to Washington in the form of voluntary agreements on wage and salary adjustments proposed for the Board's approval. These cases must be processed by the Board's Wage and Salary Stabilization Division in Washington and then submitted to the Board for action in conformance with an overall wage study made by the Stabilization Division.

The 70 applications now on file and all others which may arise in the future must be processed by a staff of 10 (the Airframe Unit) in the Wage and Salary Stabilization Division. Division head, Carroll Daugherty, explained to *American Aviation*: "Although this may seem like a small number for such an important industry, actually it is a larger staff than I have ever been able to assign to any other industry." He pointed out that the usual number is two or three, with perhaps a fourth during emergency and peak load periods. Headed by Richard Feiser, the airframe unit staff consists of six economists and four clerical employees. It forms 50% of the National Industry section of the Review and Analysis Branch. This section is responsible for processing applications from all industries which are handled on a national basis. Pearce Davis, director of the Review and

Analysis Branch and Max Malin, head of its National Industries sub-division, are ultimately responsible for the analyses compiled by the Airframe Unit.

The Unit receives all voluntary applications on Form 10 which calls for a schedule of existing and proposed rates; these schedules are analyzed job by job. The criteria for decisions on major cases are inter- and intra-plant comparisons. In this way the unit's first important cases, North American (Dallas) and Douglas (Tulsa and Oklahoma City), were decided by adapting the previously established SCAI plan of job classification and wage rates to the mid-continent area in which the plants were located.

Industry spokesmen object, not to the Unit's methods, but to the time-lag of months which occurs between the filing of each application and the announcement of the Board's decision. It is reported some applications, filed as long ago as January, are still waiting for approval. They say that in very important cases the Army and Navy can obtain priorities but that the majority must wait in line. Meanwhile workers become dissatisfied and quit their jobs "at an alarming rate." In the case of many women workers this often means the loss of that person to the national labor force, though men normally shift immediately to another job.

Some Cases 'Specialized'

The Board last week announced the return of airframe cases in the states of Washington and Oregon to the jurisdiction of the Twelfth Regional Board in Seattle. This action was taken because of the specialized nature of those cases, NWLB officials indicated.

The docket of cases to be considered by the full Board in the near future contains five more of the "mid-continent plants": Douglas, North American, Higgins, Lockheed Vega and Consolidated Vultee—all applying for approval of SCAI Technical and Office rates.

Since these cases stand eighth in line, it is presumed they will come up for decision within the next two weeks. But the Board is still far short of its announced objective. "Our goal," said Chairman William H. Davis on July 8, "is a complete turnover every 20 or 30 days. In other words we expect that applicants may soon expect a ruling on the average of only 3 to 4 weeks after they submit a proposed adjustment."

Miles Heads Writers

Marvin Miles, aviation editor of the *Los Angeles Times*, has been elected first president of the newly-organized West Coast Aviation Writers, an organization to foster accurate aviation news coverage in Southern California. Lawrence Black, editor of *Western Flying*, is vice president, and Peggy Guetter, west coast editor of *American Aviation*, is secretary-treasurer. Membership includes aviation writers for newspapers, wire services and trade and business publications in the aviation field.

Dominions Link Must Cross U. S.

Any air line across the Pacific between Canada and Australia in a postwar British Empire air transport scheme would have to cut across the United States because of the vast distances involved, Sir William Glasgow, Australian High Commissioner to Canada, said in Halifax last month.

Pullman Formulates Plans for Meeting Airlines' Challenge

Post-war plans of the Pullman company are being formulated with an eye toward meeting effectively the prospective competition of air transport according to George A. Kelly, vice president of the Pullman Co. in an address last month before the Steam Railroad section of the National Safety Council at Chicago.

Claiming few, if any forms, of really comfortable long-distance travel will have any competitive advantage in cost and luxury when Pullman Company's post-war plans are placed in effect, Kelly attempted to definitely turn aside the predictions of those both in and outside the aviation industry who believe that air transport will take a major part of the Pullman travel of the future.

One of the recent predictions along this line was made by Ernest W. Williams, Jr. in his study entitled, "Air Transport After the War" which he made for the National Resources Planning Board.

Stating that Pullman expects increased competition from all common carriers, including the railroads themselves due to improved coach travel, Kelly said that as in the past, the major competitive factors affecting travel are speed, cost, comfort, service and safety, and on that basis, he claimed Pullman would strengthen its competitive position. Only in the matter of speed would he give an advantage to the airplane.

Rail-Pullman travel will not be as fast as air travel but "in usable business or play time and in other sales factors" the Pullman company does not believe it will suffer materially from uncompensated competitive advantages, Kelly contended. He said Pullman travel would continue to have a wide margin of superiority over all other forms of transportation as far as safety is concerned.

The speaker said two types of cars in experimental service are aimed at providing a "decisive edge" in regard to cost, comfort and convenience features. The first, Kelly described as a "coach-sleeper." It was designed to interest the lower-budget travel market. While the conventional pullman has 28 berths, the new coach sleeper would have 40 berths. Seats are all on one side of the car, and at night the car is converted into a sleeper, with each triple tier of berths forming a section.

Ingenious design of the new luxury Pullmans which will contain duplex-roomettes may make it possible to sell this type of accommodation at little or no increase over the price of a lower berth today, Kelly said. Through an interlocking arrangement of rooms, it has been possible to provide 24 accommodations in one car while the conventional type has accommodations for but 10 to 12 passengers, the speaker pointed out.



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It's a tough job at best...this business of bombing, but around-the-clock it must continue...if we'd shorten the path to victory...and it's during the jittery hours of darkness...or when fog shuts down, that getting home in safety depends on accurate radio transmissions. "Blueprints of Safety" assure that A.A.C. whip antenna is reliable at all times, and under the most exacting conditions. Its automatic direction finder allocates the course and an additional safety factor is the retractable feature, which facilitates easy replacement from within the ship.

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Stewart Hails Closely Knit WTS-Army-Navy Relations

By BARBARA B. C. McNAMEE

THE REVOLUTION in pilot training at the Civil Aeronautics Administration has run its course, R. McLean Stewart, executive director of the CAA War Training Service, declared last fortnight in a review of the training program. He hailed the "close tie-up" between WTS and Army-Navy combat training.

"WTS is working for the Army and Navy, and this relationship shows no sign of weakening," said Stewart.

He observed, however, that there may be less need for Army-Navy training centers next year, and many may be idle.

Stewart traced the CAA pilot training program from enactment of the Civil Pilot Training Act of 1939. At that time, Congress appropriated \$4,000,000 to CAA for pilot training to begin July 1, he recalled. Funds were made available to colleges as aviation scholarships, to be awarded students interested in acquiring approximately 40 hours flying time during an academic year. Flight contractors were selected by the colleges.

'Non-College' Program

In February of 1940, experiments began on a "non-college" elementary program and a secondary course, lasting 6 months. A total of 8,967 students were graduated that year, having flown an aggregate of 371,000 hours and 27,965,000 miles with only two major accidents and one fatality.

In 1940 and 1941 CPT grew to major proportions. Its budget carried over \$36,000,000, which provided for 55,372 courses training about 50,000 persons. Over 40,600 of these completed the elementary course, 6,000 the secondary, and about 8,000 the advanced course, instituted that year to train flight instructors. The leisurely aspect of the program was dropped during that year; all classes, including the now expanded "non-college" program, were completed in four-month sessions. About 2,168,725 hours and 175,520,000 miles were flown, with 26 major injuries and 21 fatal accidents recorded.

Starting the summer of 1941, the program of Civilian Pilot Training suffered a reverse. Congress cut its appropriation to \$25,000,000 and as a consequence the number of courses given was reduced to 39,552.

4-Month Sessions

Despite the outbreak of war and an unparalleled demand for pilots, neither expansion nor serious change of routine resulted for CPT. Four-month sessions for trainees remained standard. Two new types of schools were created, but they merely filled in the existing training pattern. One type school provided advanced courses for graduates of the non-college elementary class; the other gave cross-country and instructor training to graduates of college secondary courses.

Several minor changes were included with the start of the war. All CPT students in college were asked to pledge their services to the Army or Navy on

completion of their training. This developed in March, 1942, into the decision to make CPT scholarships dependent on enlistment in the Reserves. The Army also decided that all men who, on enlistment, were found qualified for duty as Army Aviation Cadets should receive no more CAA training.

The statistics for training in 1941-1942 showed a substantial drop from the previous year. In 39,552 courses, 1,857,000 hours were flown and 167,681,000 miles flown. Major injuries totaled 26 and there were 14 fatal accidents.

With the fiscal year beginning July, 1942, CPT became a war enterprise. Congress appropriated, and earmarked for the training of Enlisted Reservists, the sum of \$72,677,450, nearly three times the amount available the preceding year. In December, this fact was underlined by the substitution for Civilian Pilot Training of the name, War Training Service.

Although the same courses were retained in this war program, WTS was given many new responsibilities, such as the recruitment, selection, and enlistment of the trainees. It was responsible for the delivery of these men to the Army on a definite schedule. The initial agreement provided that CAA recruit and train

13,350 men in the Air Corps Enlisted Reserve; 3,000 of these were destined for the airlines, 1,000 as liaison pilots for the field artillery, 3,000 prepared for advanced glider training in the Army and 4,500 as instructors. Results were not at all satisfactory. In one group of 600 airline pilots, only 346 qualified by Army standards for the duty for which they were trained. Similarly, in the instructor training course, about one-third of the quota, or 1,337, were graduated. In the case of liaison pilots, the quota of 1,000 was exceeded by 246. But when only 41 of the first 105 qualified, the Army established its own training center for liaison pilots. The pre-glider schools erred on the side of abundance, producing 910 more than were scheduled.

Recruitment Snarls Aggravated

The snarls in recruitment, course scheduling, and instruction standards were, by the fall of 1942 aggravated by a growing scarcity of planes and plane parts for repair and replacement. Secondary trainers did not exist in sufficient numbers and no provision had been made for giving WTS a share in the planes being manufactured. With this limited supply, the great need for aircraft only caused prices to sky-rocket adding heavy costs to the burdens of WTS contractors. The climax for materials shortages was reached, when, in November, 1942, the Joint Aircraft Committee denied WTS priority ratings for obtaining repair parts.

These conditions resulted in a call by the Secretary of Commerce for an outside investigator to analyze the program and suggest plans for reformation. Out of the investigation (conducted by Stewart) beginning Oct. 15, there came the new office of Executive Director of Training. (Stewart was appointed to fill the position on Jan. 22, 1943).

January, 1943, brought relief for the two WTS equipment problems. The Joint Aircraft Committee solved the repair parts shortage by issuing a directive allotting the Civil Aeronautics Army War Training Program a military priority rating. JAC also instructed Army Air Forces Contractors to accept orders for maintenance spare parts from WTS operators. WTS ever since has shared in the supply of parts which formerly was reserved exclusively for the Army Air Forces.

Civilian Planes Sought

But the need for airplanes was not met by a diversion of manufacturing to WTS. Instead, planes were sought from the civilian owners scattered throughout the country. The first step in collecting was to freeze ownership of all existing light planes through the issuance of War Production Board Limitation Order L-262. These planes, which under the order could not be sold or rented to other civilians were of necessity funneled toward the willing hands of WTS operators. CAA at the same time established a schedule of prices for authorized transfers. The final step was taken when CAA arranged for the purchase of the planes, which, from lack of capital in the hands of many operators, would not otherwise have been available to the WTS program.

Planes reached flight contractors by a complicated route. After an agreement signed in February, 1943, Defense Plant

(Turn to page 55)

Director and Aide



R. McLean Stewart, executive director of WTS, and W. L. "Jack" Nelson, assistant director of training for CAA, are shown in the director's office.

Brewster Urges: Form National Air Policy

Senator Believes Postwar Rights to U. S.-Built Air Bases Should Be Secured

THE URGENT NEED for forming a national policy now for postwar commercial aviation and for securing postwar rights—both commercial and military—to foreign air bases built during the war with U. S. funds, highlighted the formal report filed with the Senate last fortnight by Sen. Ralph O. Brewster (R., Me.).

The report's observations and recommendations were drawn from the recent global tour Brewster made along with four other members of the Senate. It is one demonstration that the President's contention that ownership of foreign air bases will be unimportant—under the air policy he and Prime Minister Churchill have informally agreed upon—has not quelled Senatorial demands for U. S. "rights."

Brewster takes the position that postwar commercial aviation, even aside from economic considerations, is a paramount matter, confronting the nation because of the entwined relationship of commercial and military aviation.

"The world has long recognized the intimate connection between sea power and the merchant marine," the report pointed out. "The relationship is far more intimate between military and commercial aviation. The production facilities are far more readily convertible than in the case of marine construction and the speed of the transition corresponds to the speed of the plane. The bomber plants of today are the transport plane plants of tomorrow—and the reverse will also be the case. America must realize the implications . . . before it is too late."

'No Right of Access'

The Brewster report re-iterated the recommendation made to the Senate previously by all five globe-girdling Senators:

"America has built and is operating hundreds of airfields all around the world costing hundreds of millions of American dollars. We have no right of access at the present time to any of these airports built by our money outside the Western Hemisphere six months after the war comes to an end. This seems to be a situation that invites early attention in view of the certain significance of air transport in the world that is to be."

The report then observed:

"Considerable consternation has been expressed at the strong and unanimous report of the five members . . . concerning the future of America in the air. The surprise which has been expressed on both sides of the Atlantic at our conclusions on this score are extremely revealing as to the lack of realization in the U. S. as to what is here involved. This situation was first brought to my attention in December, 1942 as a result of heated debates upon the subject in the British Parliament. In these discussions very great concern was expressed as to the position of America and as to the necessity of Britain taking action to insure their position in commercial aeronautics

in the postwar world. Assurance was given that the matter was being carefully considered and explored and accumulating evidence is at hand as to the customary thoroughness with which the British have approached this global problem."

Five further observations made in the Brewster report were:

(1) That Great Britain has taken decisive steps in postwar aviation planning, is continuing its monopoly policy.

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Burden Sees Postwar Advance in Traffic Control Techniques

Airport traffic control which will permit a landing every three to five minutes, automatic communication and posting of flight data, ultra high frequency radio ranges with visual courses and ground station aircraft detectors are some of the improvements which the pilot and public may expect in the postwar era of aviation, according to William A. M. Burden, special aviation assistant to the Secretary of Commerce.

Burden outlined the progress which is being made toward more expeditious handling of air traffic in a speech last month before the Institute of the Aeronautical Sciences in Washington.

Many of the mechanical and electrical devices necessary to carry out this far reaching program already are beyond the experimental stage and will be put in operation as soon as the war program will permit, he stated.

The new system, largely through use of improved radio and other electrical devices, is designed to eliminate the time-consuming procedure of relaying reports and instructions between pilot and the airway traffic control center.

This communication lag will be reduced approximately 75% by a procedure known as "approach control," Burden said. The control towerman, talking direct to the pilot, exercises control during instrument weather conditions of all arriving aircraft after they have reached a designated point within a few miles of the airport. Proper arrangement of radio facilities will permit a straight-in approach from this point which can be handled most efficiently by the control tower, Burden explained.

Based on present studies, he said, it seems wise to lay plans now for the handling of from 53 to 60 million aircraft movements by 1950 based on the estimate of 300,000 private planes and 200,000 other aircraft, including military, which it is expected will be in operation at that time.

To avoid the delays occasioned by manually performed operations at airway control centers, the Civil Aeronautics

Administration, Burden said, had been working on automatic posting equipment since 1938 and had placed such a system in operation at Washington airport in 1941. Great increases in traffic forced this system out of actual service but it has served as the basis for considerable study and development work on plans for an integrated automatic communications and posting system for handling air traffic control flight data.

The complete system, Burden said, will comprise a network of printing telegraph circuits linking airway traffic control centers to each other and to the sources of flight data—airway communications stations, airline radio stations, airport traffic control towers and military operations offices.

Under this arrangement, the control officer will be able to note the progress of all flights in his area and make his dispositions for landing the craft safely and expeditiously. Elapsed time of an aircraft between two radio fixes will be automatically computed and posted. Weather information will also appear on the boards.

Another big improvement is looked for through use of the high frequency radio which will eliminate the necessity of the pilot listening to the signal in the ear-phones and enable him to follow his course by means of a panel indicator, Burden asserted. Weather, static, fading signals have all been eliminated in the ultra high frequency radio ranges.

A "vertical separation indicator" which will enable the pilot to keep check on all planes within a radius of 10 miles and 1,500 feet above or below is also in the process of development. Signals representing the altitude of other aircraft will be shown on an oscillograph screen.

TWA's Capt. Buck Lists Improvements Desired By Airline Pilots After War

A cockpit view of improvements which the pilot hopes for in the postwar development era of aviation was presented to the Institute of Aeronautical Sciences in Washington last month by Capt. Robert N. Buck, of TWA, who is now engaged in intercontinental flying for the Army Transport Command.

The pilot, according to Capt. Buck, has two major concerns. The first is getting his flight through safely. The other is the comfort of the passenger.

The pressure on the pilot from these two concerns can be greatly reduced, Capt. Buck said, if improvements in navigation aids, communication, air field control and various other factors affecting flying are accomplished.

Capt. Buck said the pilot is looking for relief from airport congestion; static, which interrupts radio communication during thunderstorms; and the necessity for lengthy communication with air control towers prior to landings.

He said ceiling and visibility limits could be lowered if certain directional aids were supplied. He said there is also room for improvement in the rules and regulations governing pilots.



Fear is no respecter of foxholes

Heinrich is afraid.

Once he goose-stepped the gory road from Poland to Paris. Once he sang "We're Sailing on England Tonight"—*and believed it!*

But now he is afraid. Now he knows that fear is no respecter of foxholes.

Why is Heinrich afraid?

Because—out there in the darkness of his dirty, dank hole in the ground—he knows what it is to listen for an enemy he can't hear... to look for an enemy he can't see... an enemy that, any night now, may come stealing out of the sky in their giant gliders.

Here at WACO where these gliders were designed . . . and here, and in the fifteen other plants where they are being manufactured under WACO's design and engineering supervision . . . we're working night and day so that Heinrich will not long be afraid . . . so that Heinrich will not long be—period! THE WACO AIRCRAFT COMPANY, Troy, Ohio, U. S. A.



ALL ARMY CARGO-TRANSPORT GLIDERS ARE WACO DESIGNED

Log on Recent Knox Trip:

17,656mi - 89hrs - 200mph

Details of Each Hop

From	To	Distance	Average Mph.
Washington	Newfoundland	933	131
Gander	Scotland	2,148	211
Scotland	Port Lyautey	1,997	219
Lyautey	Oran	375	214
Oran	Algiers	227	209
Algiers	Bizerte	367	209
Bizerte	Tunis	37	138
Tunis	Algiers	404	186
Algiers	Casablanca	658	191
Casablanca	Dakar	1,520	191
Dakar	Recife	2,037	206
Recife	Belem	1,251	246
Belem	Trinidad	1,131	189
Trinidad	Panama (France Field)	1,349	206
Panama	Allbrook Field	77	125
Panama	San Juan	1,211	203
San Juan	Guantanamo	609	187
Guantanamo	Washington	1,325	209
		17,656	200

(While the recent trip of Secretary of the Navy Knox to the war theatres has been thoroughly publicized from the military and political standpoints, no specific information relative to the aviation angles of the tour has been made public previously. *AMERICAN AVIATION* presents the first aviation report on this important trip.—Editor's Note)

AMONG THE NUMEROUS international aerial tours in connection with the war effort which have advanced world aviation materially, the recent visit of Secretary of the Navy Frank Knox to England, Africa and Italy provided a striking statistical record.

During three weeks of travel to the war theatres Secretary Knox flew 17,656 miles in a single plane, the R5D (Douglas Sky-master, four-engine NATS transport) at an average speed of 200 miles an hour for the trip, with a total of 88 hours and 47 minutes in the air in this one plane—exclusive of two shuttle trips near the front made in other planes.

Not the slightest mechanical difficulty was encountered with the plane which was loaded to 65,000 pounds gross at most of the takeoffs.

Though the average speed of 200 mph was high, the potential speed was reduced by time consumed in making several short jumps and by wide detours made for the sake of safety or to avoid storms.

The trip which was made over a special route was described for *American Aviation* by Commander Wharton E. Larned, USNR, commanding officer, Air Transport Squadron 1, Naval Air Transport Service, with headquarters at U. S. Naval Air Station, Patuxent River, Md. Commander Larned, whose home is Oak Park, Ill., is a veteran air mail flyer and before the war was Superintendent of Flying for United Air Lines. When NATS was organized five days after Pearl Harbor, Squadron 1 was the first commissioned, starting with one plane.

Commander Larned said the only mechanical adjustment on the entire trip was installation of a new set of spark plugs at Belem, Brazil, on the return trip. This was only because the manual calls for replacing plugs after 60 hours; the old plugs were in good condition.

The interior of the plane was specially arranged for the trip, although there were no specially prepared appointments. The two bunks which are standard in the forward part of the plane were assigned to Secretary Knox and Commodore Carter, the next senior officer in the official party. This arrangement was disturbed only when the party arrived at a base in Newfoundland, where Admiral Olaf M. Hustvedt, USN, of Decorah, Ia., on an important mission was seeking quick transportation to England. The Admiral was taken aboard and that night "bumped" the Commodore for the second bunk.

Seven regular airline seats were installed in the plane and several army cots were set up in the after portion of the cabin. A supply of food was taken, including canned vegetables, fruit juices, soups, crackers, chocolate. Several thermos jugs of hot coffee, milk and water were carried and replenished along the route. An electric grill was installed and hot food was served during the trip.

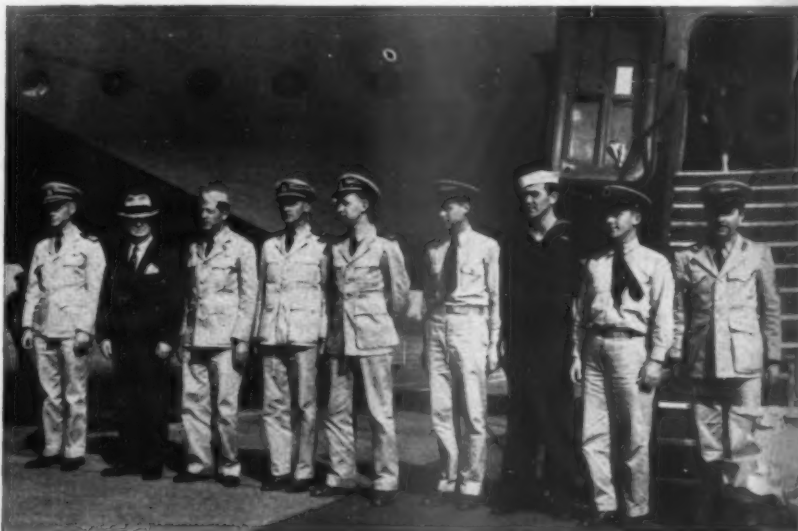
On the first leg, the 933-mile hop from Washington, D. C., to Newfoundland, Commander Larned was confronted by a storm of hurricane proportions centering about Augusta, Me. He skirted the storm area at 7,000 feet, encountering strong headwinds and heavy rain which reduced the ground speed for that entire leg to 131 miles per hour.

From Newfoundland the plane took off for the 2,148-mile flight to Scotland, in evening darkness and the Atlantic crossing was uneventful. Atop a broken overcast all the way, the plane averaged 211 miles an hour.

Careful plans were made for the flight from Scotland to Port Lyautey, French

(Turn to page 52)

Secretary Knox and His Crew



The crew of the R5D which took Secretary of the Navy Frank Knox on his tour of England, Africa and Italy. Left to right: Commander W. E. Larned; Secretary Knox; Commander Jack W. Thornburg; Lieut. Commander Stephen S. Christy; Lieut. (j.g.) Robert G. Darmstead; John K. Long, aviation chief machinist's mate; Kenneth R. Ham, aviation machinist's mate second class; Woodrow W. Perry, aviation chief radioman; Samuel G. Kerr, chief specialist (V).



Tools of Victory



Quantity Production Paces America's Drive To Victory

Today American industry is producing the tools of Victory in quantity and on time. Breeze is playing a vital part in keeping this vast flow of materiel on its way to the fighting fronts. Nearly every American fighting and bombing aircraft carries some essential equipment of Breeze manufacture.

Breeze products, which include Radio Ignition Shielding, Cartridge Engine Starters, Aircraft Armor Plate, Flexible Shielding Conduit and Fittings, Electrical Connectors, and Tab Controls and Actuators, are in service with mechanized units of all types on land, sea, and in the air. These products supplement many more bearing the Breeze Mark of Quality which are performing dependably today in battle zones the world over.

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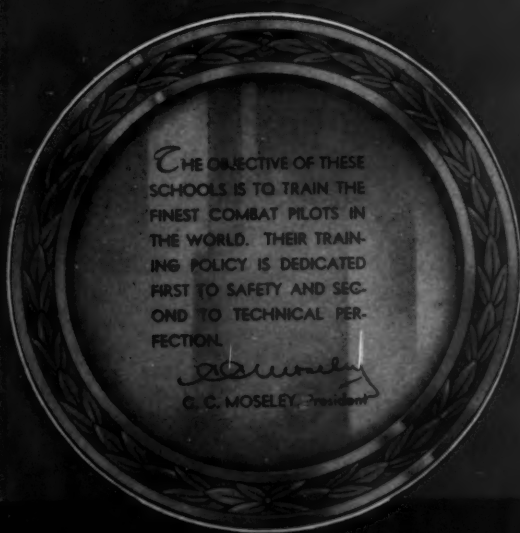
CORPORATIONS INC., NEWARK, NEW JERSEY



"ABOVE AND BEYOND THE CALL OF DUTY"
OVER



War Eagles



On the HONOR ROLL of Cal-Aero, Mira Loma and Polaris Flight Academies appear the names of more than 500 graduates, each of whom has been cited for valorous deeds entailing conspicuous service "above and beyond the call of duty". Our schools consider it a proud privilege to have been intrusted with the primary and basic flying training of those heroic youths who have won their way to everlasting fame, but we are equally proud of the other thousands of our graduates... boys of high courage and daring who await only the opportunity to prove their heroic mold. For the duration these flying schools will continue to devote their facilities exclusively to the training of Aviation Cadets for the United States Army Air Forces. To this sacred duty and privilege a loyal and patriotic personnel dedicates itself anew.

MIRA LOMA FLIGHT ACADEMY
OXNARD, CALIFORNIA

CAL-AERO FLIGHT ACADEMY
ONTARIO, CALIFORNIA

POLARIS FLIGHT ACADEMY
LANCASTER, CALIFORNIA
WAR EAGLE FIELD

Manpower

(Continued from page 18)

line were named "most urgent" and given first call on manpower; 129 Los Angeles County war plants were placed on the priority list; about 25%, or 15,000 workers were referred to top urgency jobs by USES during one recent three-week period, indicating a strong swing of labor to "critical" war work.

"If the present rate of referrals continues," said H. R. Harnish, chairman of the area Production Urgency Committee, "we soon will be able to break the most serious existing bottlenecks and turn our attention to secondary priorities. In so doing we must take strong measures to prevent drainage of the manpower pool by less essential industries and must divert still larger amounts of labor into all activities covered by priorities."

The adjustability of the plan to meet production crises was evidenced at one plant given a high urgency rating because it had become a bottleneck. Three hundred and fifty new employees were needed on certain operations and manpower priorities soon put 304 workers on the job. The resultant boost in output of key components was a major factor in a 50% production increase for the entire plant, which employs several thousand workers. In other cases prime contractors, holding high manpower priority ratings, have waived them so that small sub-contractors could be helped to overcome serious temporary bottlenecks.

Details of the contracts placed in top rank for urgency are secret military information, but the following major production fields are covered by Group I in the Los Angeles area; certain types of aircraft; construction and operation of synthetic rubber and high octane gasoline plants; military radio and radar; ship repairs; new naval ship construction; air craft and heavy-duty tires; combat vessels; cargo vessels and tankers; oil well drilling; public utility and railroad repairs; new naval ship construction; air-steel production and fabrication and secret military construction.

"Thus far, we have given our entire attention to military projects which necessarily had to come first because of their extreme importance to war strategy," reported Louis M. Dreves, chairman of the area Production Urgency Committee. "The present Group I list will be expanded or curtailed as need requires. Meanwhile, we are continuing to review local production and will eventually assign categories to all fields of industry rated as necessary to the war program."

Pacific Bases Can Convert To Peace Status in 24 Hrs, Says British Newspaperman

Planes, personnel, and bases in the Pacific could swing into peacetime schedules within 24 hours after the end of the war, William "Bill" Courtenay, former aviation editor of the London Times and Daily Sketch Group, now a war correspondent in the Southwest Pacific, told *American Aviation* last fortnight in Los Angeles.

Parks Air College Plans To Distribute Small Plane

A LARGE-SCALE PLAN for postwar distribution to civilians of a light "flivver" type airplane was announced last fortnight by Fred C. Parks, vice president of Parks Air College, East St. Louis.

As soon as possible after the war, Parks said, his organization plans to offer to the public "an easily piloted low-wing cabin monoplane, the Ercoupe, in two models, one for two passengers at about \$1,500, the other a four-place plane at about \$2,000.

Revealing that Parks Air College has been making plans for distribution of the Ercoupe since January, he said 105 of the highly-maneuverable craft had been built by Engineering Research Corp., Riverdale, Md., before war demands halted production. Postwar production of the planes by this firm is planned on an assembly line basis.

W. K. Brassch, Chicago sales consultant, was scheduled to begin training 15 employees of the college in sales procedure Nov. 1. It was announced that they would issue invitations for a preview of the Ercoupe between Nov. 1 and Nov. 14, marking the first time Parks Air College, now training aviation cadets, has been opened to the public during the war.

It was explained the key salesmen

would be trained as a nucleus for a distribution organization to operate throughout Missouri, Kansas, Illinois, Indiana, Iowa and Nebraska, the only states to be covered in the initial program.

In connection with the plan, Edward G. Doody & Co., of St. Louis, has surveyed groups with incomes over \$3,900 a year and found considerable interest in such a craft, many persons indicating intention to buy small planes after the war.

Retail price of the Ercoupe, an all-metal plane weighing less than 1,000 pounds, and equipped with a 65-hp, four-cylinder engine, will include the cost of teaching purchasers to fly. It is estimated that the craft, said to steer as easily as an automobile, cruise at 100 mph and have a top speed of 115 miles, can be soloed after less than five hours' training time. The plane, dual controlled, will run 20 to 25 miles on a gallon of gasoline, it was stated. The four-place model will have two motors.

Everett E. Hart, flight instructor, has been conducting training among 500 employees of Parks Air College to learn exactly how long it will take to teach the average student-buyer. Janitors, cooks, stenographers and other "cross section" employees have been taking experimental training, Parks said.

Urges Creation of Central Facility for Certification of Pilots in Civil Aviation

A central facility to make practical use of a mass of theoretical knowledge in the certification of pilots for civil aviation was recommended by Dr. W. R. Stovall, medical director of the Civil Aeronautics Administration, before the annual meeting of the Aero Medical Association at Cincinnati.

"Because we lack such a facility, much valuable information gathered by the military and private organizations has been lost to civil aviation," he declared.

"We are depending today, as we did in 1926, upon the judgment of ourselves and the CAA's medical examiners over the country and upon general medical knowledge in determining whether a pilot with certain physical deficiencies should be allowed to fly," Dr. Stovall said. "The flying public, the operator and the pilot are demanding a more scientific application of this general knowledge."

While the CAA medical task is to determine whether any applicant can fly with safety, we have learned that to some extent civil aviation has been patterned after the military where the best fliers are picked from the material available, the speaker asserted.

Dr. Stovall said that on the average, the physically handicapped can learn to fly as readily as the normal individual and that it is highly important for the CAA examiner to discover whether the flier's physical condition may interfere with safe piloting and what extra hazards to other persons may result from his physical condition.

"The examiner is an important link in the pilot certification procedure. We must have an accurate, scientific and unbiased report on the applicant. Uniformity of findings is essential. The untruthful applicant and the indifferent examiner are both dangerous. Fortunately they soon reveal themselves," Dr. Stovall said.

Distributors, Manufacturers To Hold 1st Annual Meeting In St. Louis, December 1-3

The first annual meeting of the Aviation Distributors and Manufacturers Association will be held at the Hotel Jefferson, St. Louis, Mo., Dec. 1 to 3, concurrently with the annual meeting of the National Aviation Training Association.

The program on Dec. 2 will be devoted to a joint service clinic, in which operators, distributors and manufacturers will participate. Technical representatives of the manufacturers will discuss problems of maintenance and overhaul, and answer questions from operators of their equipment.

Howard-Nightingale in Action

The Howard-Nightingale, Howard Aircraft Corporation's flying ambulance, in combat, is reported in news dispatches. The plane is a small transport which will carry two badly wounded men in wire stretchers and a crew consisting of pilot, co-pilot, and nurse, and can operate from bases as far as 200 miles from battle zones. It was named in honor of Florence Nightingale, the first war nurse and inspiration of the International Red Cross.

Gov't Policy Needed—Squier

(Continued from page 16)

"Today, we have the tools for war production, and with them, we are achieving victory on the war front. Tomorrow, we must have the tools for peace-time production, and with them, we will win victory on the home front.

"Conversion from war to peacetime production—no matter when it comes—will require extensive retooling of our industrial plants, for the same tools that build war equipment cannot be used to build the goods of peace.

"Management must somehow furnish peacetime tools, for twice as many workers as were employed in industry in any pre-war year. Tools are an essential prerequisite to the creation of jobs, and jobs are essential if we are to know post-war prosperity. The tools of industry are expensive. For instance for the farmer, the average cost is \$6,000, for the factory worker, \$6,000, for the railroad worker, \$23,000, and for the utilities worker, \$60,000. To provide industry with the tools for peacetime production will require the investment of billions of dollars. Under existing conditions, however, private industry cannot possibly save sufficient amounts of capital to do this job.

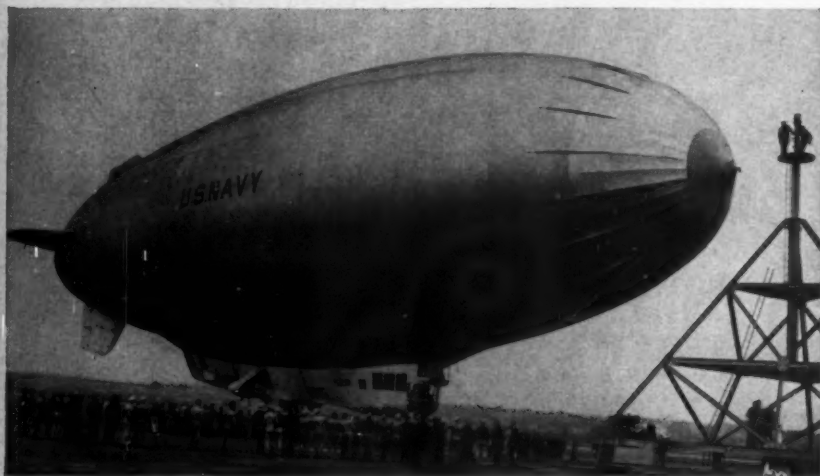
"In the last war, huge profits were made by some contractors and the people of the United States were determined—and properly so—that there should be no war fortunes growing out of World War II. In their commendable effort to take the profit out of war, our legislators have, unfortunately, made it impossible to save up sufficient reserves to provide the tool money for postwar reconversion. Renegotiation accompanied by high taxes, is not only taking the profit out of war, but in many cases it is virtually depriving industry of its right to survive.

"This is particularly true in the case of the aircraft industry which entered the war as a young industry, which for more than 20 years following World War I, had struggled to survive, and had not been able to build substantial cash reserves. Do not misunderstand me. The aircraft industry is not looking for undue profits. It is not making them. The war was not of our making, and in spite of fancied profits, our stockholders are in a poorer condition today than they were before the war. And it must be pointed out that they are not asking for any additional profits, growing out of the war. What they do want to know—and I think properly so—is that they will not be wiped out after the war, as a result of the tremendous contribution their companies have made in achieving victory.

"It seems only reasonable that aircraft profits during war times should be considered not for a single year, but over the entire duration of the war and the liquidation period which will follow. The cost of contracting a business is as much a cost of war as the expenses of expanding it. Failure to recognize this principle might easily mean the loss of this great industry, and what it can mean in helping to win the peace.

"To deprive industry of the reserves necessary to retool and reconvert for peace-time production, as well as reserves necessary to develop new markets and new products, is as fantastic and improvident as to deprive farmers of a portion of their crops to be used as seed the following year. The reserves I'm talking about are industry's seed money, and to deprive industry of it is to invite industrial famine."

Largest Non-Rigid Airship Takes Off



The M-1, newest and largest of the Navy's non-rigid airships, is shown on a trial flight at Goodyear Aircraft Corporation's airdock in Akron, O. It is half-again as large as the present airships patrolling coastal waters, and has greater cruising radius and bomb-carrying capacity, as well as additional gun positions.

Intrastate Service Asked

An important development in the intrastate air route picture occurred Nov. 3 when Great Lakes Skyways Inc., a subsidiary of Greyhound Corp., applied to the Michigan Public Service Commission for a permit to operate helicopter air routes throughout the state and air taxi service in the four-county area surrounding Detroit.

2 More Intrastate Operations Reported

Two air operations, said to be intrastate, are reported to have begun in Virginia, and indications are that attempts will be made to start similar service in other sections of the country.

Air Transport Corp., of Richmond, is reported to have plans for service from Norfolk to Richmond and/or Charlottesville and Norfolk via Richmond, together with other proposals. The company, it is said, has operated one trip from Roanoke to Richmond, the plane (a Stinson T) being damaged on landing at the latter stop.

The Virginia State Corporation Commission has told the company that it does not at present have statutory authority to grant or deny an intrastate certificate. The question of the state enacting a statute providing for the authority to grant such certificates is "a very live one," and probably will come up at the next General Assembly, convening in January, 1944, the Commission said. The Commission now has the authority to license airports, intrastate planes and pilots.

George C. Neal, general counsel for the Civil Aeronautics Board, has informed Air Transport that no CAB certificate is needed for intrastate operations, but that if interstate business is carried on the routes a certificate is necessary.

Blue Ridge Air Lines is reported to be operating two services out of Harrisonburg, Va. One line serves Waynesboro, Lynchburg, Roanoke and Blacksburg, the other Stanton, Charlottesville, Richmond and Lynchburg.

In October, the Colorado Public Utilities Commission granted S. N. Drum permission to operate an intrastate route from Denver to Durango.

CAB's course of action will probably be to allow the routes to open and then check them for interstate business. If it is found that such business is being carried, the Board is expected to take the carriers to court.

Because the Civil Aeronautics Act does not specifically require intrastate operators to have certificates, it is expected that other carriers will attempt to open routes. Preliminary steps have already been taken by some companies, especially in the southeast, it is said.

Intrastate Helicopter Lines Asked

Great Lakes Skyways, Inc., a subsidiary of Greyhound Corp., last week applied to the Michigan Public Service Commission for a permit to operate helicopter airlines throughout the state, and air taxi service in the four-county area surrounding Detroit.

Another



Martin Aircraft



Engines start instantly in sub-zero weather ... thanks to this new Martin lubrication system

WHEN radio warns of approaching enemies instant starting is required . . . and instant starting in sub-zero weather is now possible on U. S. planes, through Martin's newly-developed cold-weather lubrication system. Vital to victory today, this new device holds great promise as a means of starting automobiles, trucks or tractors on bitter-cold mornings. Here's how it works.

Without the Martin Method

Oil for an airplane engine is kept in a tank, not in the crankcase. A compartment within the tank lets some of the oil warm up faster than the rest so that it gets to the proper running temperature quicker. An oil cooler between the engine and tank keeps the oil from getting too hot. Pilots, landing in cold weather, press a button which introduces gasoline into the oil so that when they start the motors later the cold oil will be thin and permit a quick take-off. However this gasoline often evaporates from the hot engine, the oil is not thinned properly and when the engine is started, the oil cooler is blown up by the thick oil being forced into it. Result—disaster.

With the Martin Method

To meet this problem, Martin engineers devised the new lubricating system which:

1. Injects the diluent into the oil after it has passed through the engine. This prevents the hot engine from evaporating the diluent leaving the system filled with thinned oil.
2. The new system utilizes a by-pass to prevent cold, hard oil from blowing up the oil cooler.
3. The Martin system permits dilution with dual return lines to the oil tank, one line leading to the warmup compartment, the other to the main section of the tank.

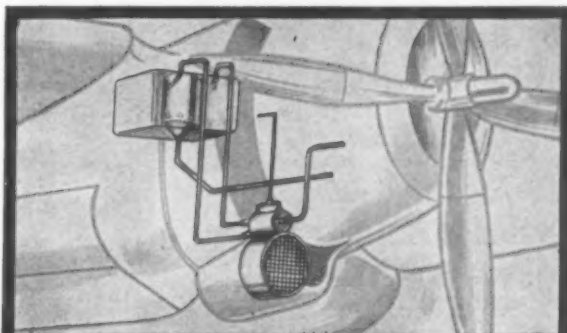
4. With the Martin system, the diluted oil is returned to the warm-up compartment, thus avoiding dilution of all the oil in the tank.

Result—mission accomplished!

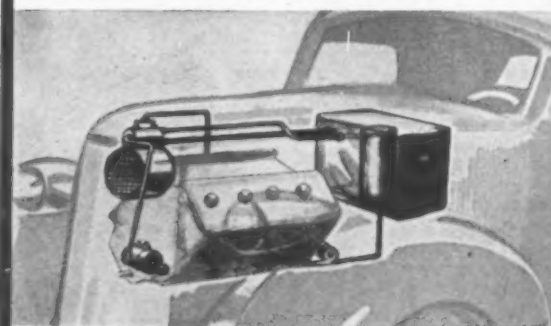
Proved in action, on Martin and other planes, the new Martin lubrication system has solved a major problem of global warfare—has brought added safety and efficiency to U. S. aircraft—and has opened new vistas for peacetime industry. In war or in peace, keep your eye on the Martin star.

THE GLENN L. MARTIN COMPANY, BALTIMORE, MD.

THE GLENN L. MARTIN-NEBRASKA COMPANY—OMAHA



★ **TODAY**, the new Martin lubrication system is saving precious material and even more precious lives, in addition to giving our planes still another advantage over enemy types.



★ **TOMORROW**, the Martin method will mean much, not only to commercial airlines, but also to manufacturers and owners of trucks, tractors, buses and private automobiles.

Martin
AIRCRAFT

Builders of Dependable Aircraft Since 1909



Postwar Planes

(Continued from page 31)

achieved in the past, not only with respect to full utilization of potential payload, but also with respect to minimizing time and precision required to determine loading factors and with respect to location and possible relocation of cargo or passengers before or during flight.

The ATA B-1 is visualized as operating on routes of heavy traffic density with stops scheduled from 50 to 400 miles apart. Other characteristics include: 50 to 60 passengers, two engines, tricycle landing gear and corresponding in general to an improved C-46 airplane. Cargo and passenger space would have an interchange ratio similar to the ATA A-1. Minimum seating capacity of 20, two passenger doors, 78 by 42 inches.

This plane would not have sleeper accommodations. Food service of the lunch box variety would be provided. Pressurized cabin is not deemed necessary but complete or partial air conditioning should be investigated. Passengers would be encouraged to retain baggage, with a stowage limit of 50 pounds per passenger seat. Cargo space—4,000 pounds permanent capacity, 8,000 pounds when minimum passenger load is carried. Seven pounds per cubic foot is usable cargo density requirement, with usable cargo space defined in the A-1 model as acceptable for the A-2. Average density of cargo expected to be carried is 22 pounds to the cubic foot.

Minimum design loading of floor should be capable of withstanding without damage a concentrated load of 500 pounds on a one inch square space, with size of largest parcel limited to 36" x 48" x 72".

Cruising speed at standard gross, 60% meto power and 10,000 feet is listed as 245 miles per hour. Minimum operational ceiling with one engine out and standard gross weight (per CAA CAR-04.8) 12,000 feet. Minimum length of airport runway for takeoff and landings at standard gross weight at sea level, 3,500 feet. Minimum range at 10,000 feet, 60% meto power, 10 MPH headwind and no fuel reserve, 1,500. Provision for optional installation for additional fuel tanks for additional range under above conditions 500 miles. Minimum payload (passenger plus cargo) at 10,000 feet, 65% power, 10 MPH headwind, for absolute range of 800 miles, 13,600 pounds.

Manufacturer should be required to furnish permissible (per CAR-04.8) takeoff and landing weights or variations of principal factors for following ranges:

(A) Density altitudes varying between 2,000 feet below to 10,000 feet above sea level (B) Runway length from 2,000 to 10,000 feet (C) Winds from 10 mph tailwind to 50 mph headwind (D) Runway inclinations from plus to minus 2% grade. (E) Runway surface variations from sand to concrete.

This plane is designed for two pilots, one steward and one stewardess.

The ATA C-1 medium range airplane would have a payload of approximately 20,000 pounds for use on routes with stops from 250 to 1,000 miles apart. This is a four-engine plane and corresponds in general to the improved C-54A. A passenger capacity of 80 is considered desirable for this basic airplane type, although it is realized that a capacity of only 60 to 70 may be obtainable because of design limi-

tations. Floor plan layouts should be provided with specifications of this airplane to facilitate decisions concerning the interior arrangement of the airplane as a sleeper.

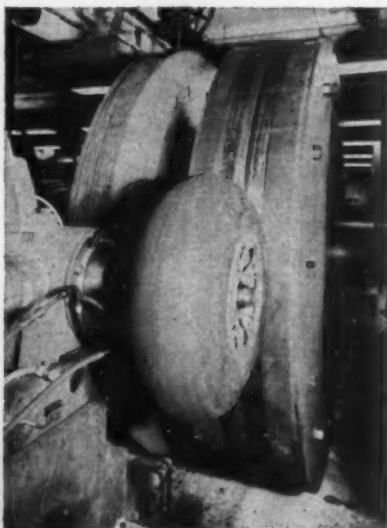
No special provisions are desired for changing ratio of passenger and cargo space. Standard seating capacity 80 but 60 or 70 should be considered if design limitations become critical. Two doors, 78" x 42" with variable width to 48" if both doors are arranged so as to be used simultaneously. Sleeper provisions, with tray food service for day version and table service for sleeper version, should be included. In both sleeper and day versions, facilities for hot beverages, toast, eggs etc. and refrigeration for butter and cream with consideration for portable units when they be required.

This plane would have a lavatory compartment for women and for men. The cabin of the plane should be designed and constructed to permit conversion to pressurized operations. The possibility of complete or partial air conditioning should be thoroughly investigated.

Stowage for 50 pounds of baggage per passenger seat with stowage space at each passenger seat of 1' x 2' x 3'. A cargo with density of cargo to be used in establishing "usable" cargo space fixed at 7 pounds per cubic foot and average density of cargo expected to be carried listed at 22 pounds a cubic foot. The specification calls for 240 pounds per square foot for supporting structure, 200 pounds per square foot for floor, concentrated load of 500 pounds on one inch square of floor

(Turn to page 50)

New Wheel Tester



Enough equivalent energy to lift a 10,000-ton Liberty ship two-and-a-half feet is built into this new machine for testing airplane wheels, tires, and brakes, which the Goodyear Tire & Rubber Co. has placed into operation. The machine is said to be capable of testing landing loads up to 40,000 pounds per wheel, tire, or brake—the equivalent of an 80,000-pound airplane.

'Queen Mary'

(Continued from page 17)

"X" as Passenger Plane

In both the long-range and medium range types the maximum degree of comfort will be provided for passengers. This will be made possible by the exceptionally large cabin and by the attention given to sound-proofing, air conditioning and lighting. The cabin is 16 ft. wide and 8 ft. high and has a volume of over 6,000 cubic ft. Conditioned air will be admitted at the rate of 17 cubic ft. per minute per person. A constant supply of fresh air can be admitted to the freight compartment for the protection of perishable goods.

All fuel will be carried in the wings and smoking can be permitted anywhere in the cabin. A number of alternative seating arrangements are possible.

In the long-range machine the cabin may be subdivided in a variety of ways to suit the requirements of the operator. In one arrangement, three cabins are provided, the forward one being the main lounge holding 34 passengers, the midships cabin being the dining and recreation room and the aft cabin being either a ladies room or a smoking room with accommodation for 16 passengers. This division is intended to give the impression of unrestricted space, until now lacking in aircraft.

An alternative arrangement provides for a longitudinal partition in the center with a ladies room on the one side and a smoking room on the other.

The main lounge is large enough for moving picture projection.

In the medium range machine the seats will be arranged in two rows of three on either side of a central gangway over four feet wide and some 60 feet long. In one layout seats are shown arranged in Pullman fashion with tables between on which meals and drinks may be served, while at night the seat is arranged to form a two-tier bunk.

"X" as a Civil Freighter

The civil freighter version of the "X" is designed for short, medium and long range categories.

Apart from its exceptional load-carrying capacity, the large unobstructed space available in the fuselage would permit the carriage of large and bulky freight which could not be accommodated in any orthodox plane.

The weight analysis is as follows:

	lb.
Weight empty	65,000
Radio and automatic pilot ..	1,000
Crew (4)	720
Disposable load	63,280
All up weight	130,000

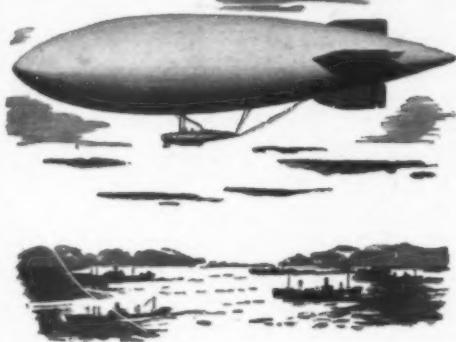
The payload and range are as follows:

	Freight lb.	Range against 50 m.p.h. headwind
Long Range	16,430	3,450 miles
Medium Range	32,680	2,100 miles
Short Range	47,880	1,000 miles

Details of the "X" as a bomber and troop transport will be announced later.

Trail Blazing in the Skies

1917-1918



"SO FAR AS CAN BE LEARNED, NO STEAMER WAS EVER MOLESTED BY SUBMARINE (DURING WORLD WAR I) WHEN ESCORTED BY A NON-RIGID AIRSHIP."

—from report of the late Rear Admiral W. M. Moffett, U. S. N., to the House Naval Affairs Committee.

In the first battle of the Atlantic, Goodyear was America's principal producer of lighter-than-air ships, building upwards of 100, most of which saw active service along the sea frontier.

1942-1943



"NOT ONE OF THE THOUSANDS OF TRANSPORTS AND SUPPLY VESSELS THAT HAVE BEEN ESCORTED BY THE NAVY'S NEW NON-RIGID AIRSHIPS HAS BEEN LOST TO SUBMARINE ATTACK."

—from official U. S. Navy report, July, 1943.
History repeats itself in more ways than one. Today Goodyear is again the nation's major designer and builder of airships, now equipped to mass-produce the world's largest non-rigid ships as a result of more than 30 years' continuous experience in lighter-than-air development.

How Goodyear Aircraft Corporation Serves The Aircraft Industry

1. By constructing subassemblies to manufacturers' specifications.
2. By designing parts for all types of airplanes.
3. By re-engineering parts for mass production.
4. By extending our research facilities to aid the solution of any design or engineering problem.
5. By building complete airplanes and airships.



Dr. Frederick Urges 'Selling Program' to Put Over Air Cargo

PUBLIC policy demands development of an air cargo business free from domination by surface transportation interests and independent of monopolistic combines, Dr. John H. Frederick, professor of transportation at the University of Texas, told the Air Cargo meeting of the Society of Automotive Engineers in Chicago last week.

Dr. Frederick was one of a dozen air cargo speakers at the meeting which was sponsored by the SAE Chicago Section with W. W. Davies, assistant director of research, United Air Lines Transport Corp., Chicago, as general chairman.

Dr. Frederick warned that air cargo should not jeopardize its future by making expedient arrangements with those who may supply coordinating services, whether in airport operation, cargo handling at terminals, or local pick-up and delivery services.

"The public should be told in no uncertain terms," he said, "that while there will have to be certain coordinating agencies between it and the actual transportation of air cargo in the air, that air cargo is, and will be, airline business."

He said that air cargo will take some traffic from rail and motor carriers, and that many marketing and merchandising methods will be changed. Local and short-haul tonnage will remain the motor carriers' business, long-haul tonnage of raw and heavy commodities the business of the railroads, both in large volume.

Warns Against Integration

"If the ground carriers handle this traffic properly," according to Dr. Frederick, "they will have all they can attend to. It would, moreover, not be in the best interests of the public for American transportation to become too much integrated, to merge the competing agencies into huge, monopolistic combines in which the surface interests would inevitably play a dominating part, particularly the railroads with their greater capitalization."

Describing major air cargo problems as providing suitable airports, adequate terminal cargo-handling facilities, and fast local pick-up and delivery service, Dr. Frederick predicted it would be necessary for the duration for air cargo to continue to utilize the facilities of Railway Express Agency. Ultimately, he added, this activity should come within the field of motor transportation, which would find therein a huge market.

Construction of airports satisfactory for air cargo service was characterized as a serious problem awaiting solution, and one which, until 1941, retarded expansion of air cargo service. Development of airport planning and of a national airport system designed to meet the requirements of regular air cargo, mail, and passenger services was recommended.

It was explained that airports might be located either with respect to geographical uniformity or to the distribution of population and business activity. Slightly more than 5,000 fields would be needed, it was estimated, to bring every point in the United States within 15 miles of an airport. Dr. Frederick said the cost of airport construction probably would have to be shared by federal, state, and local government, and the air transportation business.

"One of the most important after-the-war problems of the airlines is going to be to discover where the present and potential air cargo traffic is located, how much there is of it, where it will be going and what shippers and receivers are ready to adopt this new form of transportation at once and which will have to be sold," he said.

'Form Sales Policy Now!'

"A sales and advertising policy to sell cargo transportation services to shippers and receivers of high-class commodities should be in the making now. In this policy the airlines and air cargo should be completely divorced from the railroads and rail express. The airlines will never come into their own as air cargo carriers as long as a substantial part of their advertising and sales work are a very vital part of their coordinated service—ground pick-up and delivery—is performed by a railroad dominated organization. While this situation continues air cargo will be railroad, not airline, business."

Postwar Planes

(Continued from page 48)

space. Size of largest parcel is listed at 36" x 48" x 72", with hinged shelves for cargo stowage on two levels optional.

Cruising speed at standard gross, 60% meto power and 10,000 feet is 270 mph. Minimum operational ceiling with one engine out and standard gross weight (Per CAA CAR-04.8) 17,000 feet. Minimum length of airport runway, under standard gross weight and sea level, 5,000 feet. Minimum range at 10,000 feet 60% meto power, 10 mph headwind and no fuel reserve, 2,000 miles. Provision for optional installation of additional fuel tanks for additional range based on conditions above 500 miles. Minimum payload (passenger plus cargo) at 10,000 feet, 65% power, 10 mph headwind for absolute range of 1,500 miles 19,000 pounds.

Manufacturer should be required to furnish permissible (per CAR-04.8) takeoff and landing weights or variations of principal factors for the following ranges: (A) Density altitudes varying from 2,000 feet below to 10,000 feet above sea level (B) Runway length from 3,000 to 12,000 feet (C) Winds from 10 mph tailwind to 50 mph headwind (D) Runway inclinations from plus to minus 2% grade (E) Runway surface variations from sand to concrete.

This type plane would require five or six crew members consisting of two pilots, one flight engineer, one steward, one stewardess, one food service steward to be carried only on flights where meals are served. Separate lavatory compartment with toilet for crew.

The ATA D-1 is described as a medium long-range plane, carrying approximately 25,000 to 30,000 pounds payload, with a 100 to 120 passenger day plane version for operation on heavy traffic routes of medium range (200 to 800 mile flights). Floor plan layouts should be provided with specifications of this airplane to facilitate decisions concerning the interior arrangement of the airplane as a sleeper.

No special provisions are required for changing ratio of passenger and cargo space. In general one door for each 40 passengers. Door dimensions are the same as in the B-1 and C-1 types. Sleeping accommodations for approximately 60 passengers, with provision for stowage of coats and hats.

80-Inch Ceiling

The minimum ceiling above floor over aisle is 80 inches. In the day plane version, box lunches should be provided with provision for portable food service units when desired. Table service should be provided for the sleeper version. A lounge room should be provided with bar and snack facilities and cooking facilities for preparation of hot beverages, vegetables and steaks and refrigeration for butter, cream, etc.

Lavatory and toilet requirements, in general, are the same as in the C-1 type. The day version should be designed and constructed to permit conversion to a pressurized cabin. The pressurized cabin would be required in the sleeper version. In both versions, the possibility of complete or partial air conditioning should be thoroughly investigated.

Baggage stowage provisions are in general similar to the arrangements in the C-1 type. The cargo compartment should have capacity for 18,000 pounds, with same cargo density specifications as those that are listed for the C-1.

This plane would have a cruising speed at standard gross, 60% meto power and 10,000 feet of 285 miles per hour. Minimum operational ceiling with one engine out and standard gross weight (per CAA CAR-04.8) 20,000 feet. Minimum length of runway for landing and take-off at standard gross weight at sea level 8,000 feet. Minimum range at 10,000 feet 60% meto power, 10 mph headwind and no fuel reserve 4,500 miles. Provisions for optional installation of additional fuel tanks for additional range of 1,000 miles.

30,000-lb. Payload

Minimum payload, passenger and cargo, at 10,000 feet, 65% power, 10 mph headwind for absolute range of 3,000 miles, 30,000 pounds.

Manufacturer should be required to furnish permissible (per CAR 04.8) take-off and landing weights or variations of principal factors for following ranges: (A) Density altitudes varying from 2,000 feet below to 10,000 feet above sea level; (B) Runway lengths from 3,000 to 12,000 feet; (C) Winds from 10 mph. tailwind to 50 mile headwind; (D) Runway inclinations from plus to minus 2% grade; (E) Runway surface variations from sand to concrete.

This plane would have a crew of five or six members for day operations and seven or eight for night operations, one of which would be a navigator. The crew requirements, in general, are the same as those listed for the C-1.

IT LOOKS EASY...WHEN IT'S ALL DONE!

NOTE THE CANVAS (right) covering gravel for runways . . . Tropical cloud-bursts made this absolutely necessary to prevent landslides. Out of such dirt, difficulties and dangers Pan American has created modern airports the world around.



WORLD ROUTES
PIONEERED by PAA
NOW SPEED VICTORY

Managua's Las Mercedes Airport
was finished on July 4th, 1942

THIS IS THE WAY the airport at Managua, Nicaragua looks today — modern, completely equipped and giving the casual traveler no idea of the back-breaking difficulties involved in its construction.



THE winning of the West—the North American West—is a well-known story to everyone. But few Americans realize that Pan American World Airways, our Merchant Marine of the Air, has provided aerial commerce links between 62 different lands in the short space of 15 years!

* * *

At Managua, Nicaragua, on the vital route to the Canal Zone, Pan American built and now administers the new *Las Mercedes Airport* . . . Title is vested in the Government of Nicaragua. Over a hundred thousand dollars of the company's own funds were spent for the terminal building and other facilities.

Peaceful commerce its prime purpose, *Las Mercedes Airport* also represents another "stepping stone" to Victory and takes its place in the long chain of world air routes pioneered by Pan American . . . across the Pacific (1935); across the Atlantic (1939); in Alaska (1933); as well as in Central and South America.

Without exaggeration, it can be said that the existence of routes pioneered by Pan American has saved the United Nations' aerial war transport many long months—maybe even years.

Wings over the World



BACK THE ATTACK
—WITH WAR BONDS

PAN AMERICAN WORLD AIRWAYS

Knox Trip

(Continued from page 42)

Morocco, due to fear of interception by enemy aircraft. Leaving Scotland, Commander Larned took the big transport almost due west until it was beyond the normal operational area of German Junkers 88's, which frequently patrol the Bay of Biscay area in search of Allied shipping. Larned's calculations proved sound and the 1,997-mile journey also was uneventful.

As the flight was made at night, the course was plotted by celestial navigation. The navigating ability of Lieut. (j.g.) Robert G. Darmstead was attested when the R5D let down at dawn through a 2,000-foot overcast and broke out over the Port Lyautey field. This particularly impressed Capt. Leland P. Lovette, U. S. N., Navy Director of Public Relations and an excellent navigator in his own right.

Flights from Lyautey to Oran, thence to Algiers and Bizerte went as smoothly as the previous legs. Commander Larned had one comment: "We were getting near the war front. The nearer you get, the less formality and fooling around with red tape you find. Everybody's attitude is, 'We've got a job to do, let's get it done with as little fuss and feathers as possible.'"

From Bizerte the party was to fly to Palermo and then travel by destroyer to Salerno, where the Fifth Army of Lieut. Gen. Mark Clark was about to take Naples. Larned planned on using the R5D for the Palermo flight, but was dissuaded by warnings that the field there was not large enough to take the big plane. A twin-engine, smaller Douglas R4D was substituted, to transport Secretary Knox and his party with Larned and his crew as guests, with exception of two enlisted men left behind to check the R5D. At Palermo Larned found pursuit planes landing on the field and declared that he could have landed satisfactorily. "Where you can take a pursuit ship," he said, "you can take the R5D. She lands as short as most pursuit planes."

From Palermo the party went by destroyer to Salerno, thence by PT boat to the Isle of Capri. Returning, they traveled by destroyer to Palermo and thence to Bizerte by R4D. Leaving for home, they flew via Bizerte, Tunis, Algiers and Casablanca.

Takeoff from Casablanca was made at 7:18 a.m. and landing at Dakar, 1,520 miles distant, was made at 3:31 p.m. Six hours and 50 minutes later, the party was back in the air to be winged 2,037 miles across the South Atlantic to Recife, Brazil, in nine hours and 53 minutes. An average speed of 206 miles an hour was made on this leg.

The plane covered the 1,251 miles from Recife to Belem in five hours and five minutes—an average of 246 mph. Thus on the two legs from Dakar to Belem the R5D covered 4,808 miles in 18 minutes less than a day and a half. Actual flying time was only 23 hours and 11 minutes; average speed was 208 mph.

The trip northward from Belem was enlivened by traditional ceremonies when crossing the equator, with Secretary Knox in the role of Neptune and Capt. Lovette as prosecuting attorney. The trip to

Heads Airlines Terminal, Inc.



W. S. Green, manager of the passenger and cargo department of American Export Airlines, has been elected president of Airlines Terminal, Inc.

Washington via Trinidad, Panama, San Juan, and Guantanamo was described as strictly routine.

On the return trip Secretary Knox spent several hours each day riding in the co-pilot's seat, and at Larned's insistence was "up front" when a landing was made at Guantanamo. He expressed great pleasure with the excellence of the landings.

Throughout the trip Commander Larned and Commander Jack W. Thornburg, USNR, of Washington, D. C., the co-pilot, split the takeoffs and landings.

Other members of the crew were:

Lieut. Commander Stephen S. Christy, USNR, Arlington, Va., supervisor in charge of all extra detail such as messing, sleeping arrangements, ground transport.

Lieut. (j.g.) Robert G. Darmstead, USNR, Oakland, Cal., navigator.

John K. Long, Greenwood, S. C., aviation chief machinist's mate.

Kenneth R. Ham, USNR, Wollaston, Mass., aviation machinist's mate second class.

Woodrow W. Perry, USN, Amite, La., aviation chief radioman.

Samuel G. Kerr, USNR, Miami, Fla., chief specialist (V)—a classification covering NATS "transport airmen" who serve as flight orderlies and perform generally the functions of the passenger agent of a commercial airline.

Bibliography on Airways Out

An extensive bibliography on airways and airport planning and protection of approaches has been issued by the American Society of Planning Officials, 1313 East Sixteenth Street, Chicago. Listed with annotations are studies made by local, state and regional planning agencies. Also listed are reports and other documents dealing with protection of airport approaches, legal aspects, airport income and expenditures, and similar problems.

Brewster Urges

(Continued from page 40)

(2) That America will suffer for delays in similarly formulating a policy.

(3) That discussions of postwar security should relate military and commercial aviation.

(4) That seapower now involves airpower.

(5) That air transport has, as will be made increasingly evident in the postwar, "revolutionized" the world.

Announcements at the conclusion of the Empire conference held in London last month indicated that agreement had been reached regarding the part which all parts of the British Empire would play in developing postwar commercial aviation; stated the report.

"Britain is continuing the policy of monopoly in overseas aviation with the great British Overseas Airways amply financed from the government funds and placing at its head one of the ablest administrators and keenest minds in the British Empire in the person of Lord Knollys, formerly Governor of Bermuda and now devoting his great talent to the future of Britain in commercial aviation around the world."

"Certainly it is proper that America should similarly give attention to the determination of its policy," the report emphasized, "in order that our people may be fully informed and that Congress in collaboration with the administration may determine the form of our policy in this highly important field."

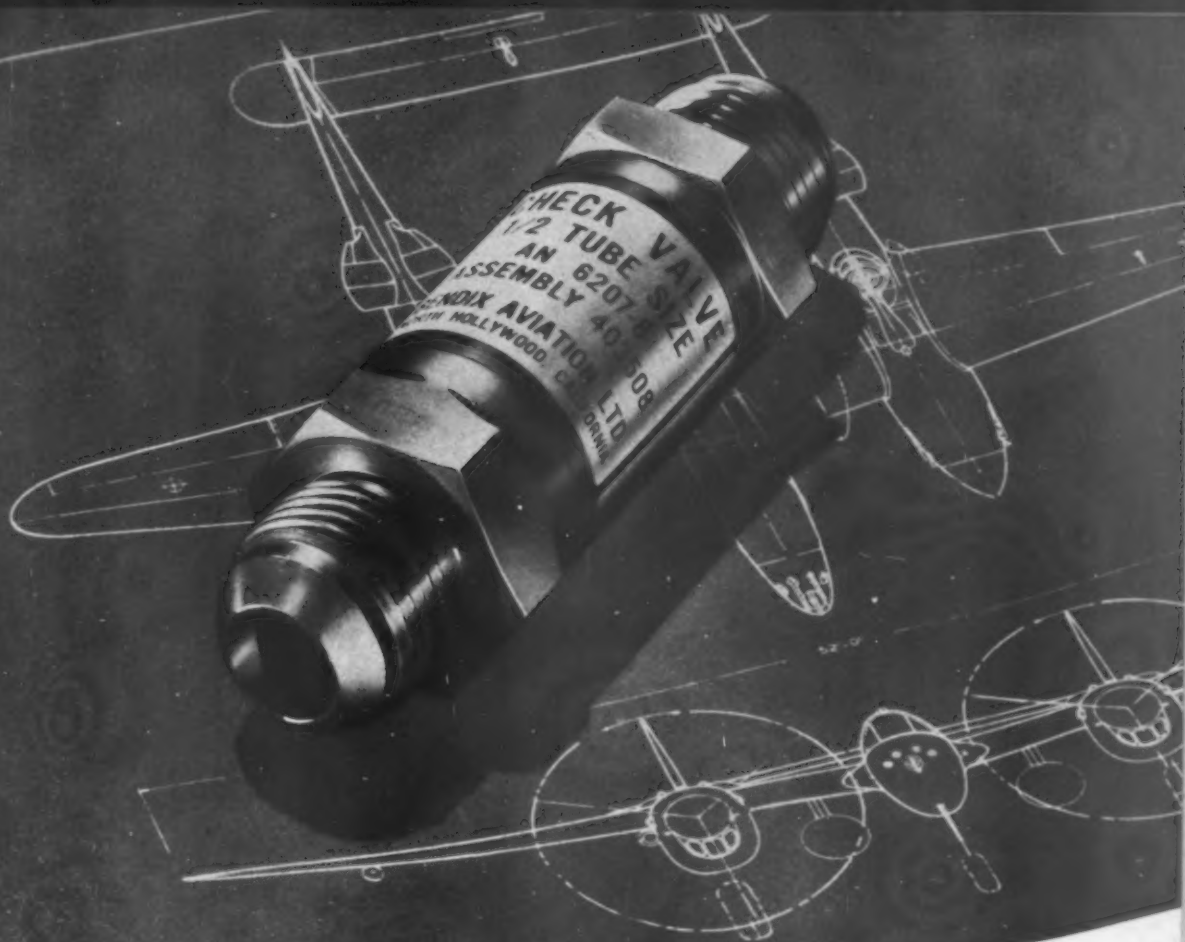
Striking back at criticism of the five Senatorial critics of America's lack of apprehension over postwar aviation, the report questioned: "Since when is it treason for America to take thought as to its position in this field? Is it improper or un-American to suggest that the hundreds of millions of dollars invested by America in airfields in all parts of the world may perhaps be permitted to serve in some measure the interests of America in the air argosies of peace?"

Then, the report replied: The position of the Senatorial committee of five "is not likely to be altered by abuse or ridicule or by anything other than persuasive arguments as to why America should abandon its position in the production and operation of planes in commercial overseas air transport in the postwar world. Aeronautics must inevitably be an instrument of national policy. If America is to maintain an interest in the affairs of the world, America must be able in the field of communications and transportation to sit at least as an equal at the table of the nations. Every day of delay in approaching this problem increases the hazards that American interests will suffer in the years that are to come."

Declaring that discussions of the peace role of aviation should include commercial aviation as the sister of military or defense aviation, the Brewster report stated:

"Some current discussions in the press have proceeded upon the hypothesis that the only question involved was that of military bases. This is very far from being

(Turn to page 55)



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Brewster Urges

(Continued from page 52)

the case. As has been pointed out the problems of military aviation will undoubtedly be worked out in conjunction with the others concerned in the United Nations and appropriate decisions reached regarding the allocation of responsibility in the keeping of the peace and the use of the various facilities that are necessarily involved in the girdling of the globe.

"This, however, is very far from reaching the root of the problem since military aviation and expansion must necessarily progress with a commercial base. The facilities to build planes in a constantly evolving art with almost undreamed of possibilities in the decades immediately ahead must rest in substantial measure upon the progress and development of commercial aviation. In this field America has a tremendous start as a result of the extent to which commercial air travel had developed before the war. In the field of transoceanic aviation one American company had been a leader in the world with operating rights to more than 60 foreign countries and coping successfully with the keen competition of the far more closely supported governmental monopolies of overseas air lines in other countries."

The lessons of this war "make it entirely evident that airpower has now come as a supplement to seapower," the report stressed. Before the war "seapower had been the only means of stabilizing conditions around the globe." This means, it concluded, that "the future peace of the world must depend in substantial measure upon aggressor nations not being able to develop airpower that shall once again threaten peace-loving peoples."

Amazement at the implications of air transport, analogous to that of Wendell Willkie in "One World" is related by Brewster in his report:

"The most impressive lesson of the trip is the revolution in the world brought about by air transport. Hopping the 'hump' of the Himalayas at 22,000 feet between two layers of clouds we had opportunity to ponder the implications of air transport by which alone China can now be served. Going north to the Arctic Circle and south nearly to the Antarctic Circle our trip covered approximately 45,000 miles within nine days of flying time. This would mean that flying straight around the earth at the Equator the trip could have been completed in the plane assigned to us by Gen. Marshall in approximately five days. Planes are, however, rapidly coming into production for transport purposes that would make the trip in three days with appropriate delays . . ."

8th Air Force Gets Fighters

American fighter plane forces in Britain will be almost doubled by Jan. 1, and the huge force will be deployed in relays escorting American heavy bombers all the way to targets deep in Europe, it was announced last fortnight at the 8th Air Force Fighter Command headquarters, London.

Gov't Procurement Agencies Strengthen Conservation Policy

Government procurement agencies are further strengthening their aircraft conservation policies. A recent directive from the Aircraft Materials Conservation Committee presents a program designed to "replace manufacturing processes resulting in excessive waste of materials, manpower and facilities with more efficient and economical methods."

The Army Air Forces, Navy's Bureau of Aeronautics and WPB's Aircraft Resources Control Office are pooling ideas, conducting experiments and disseminating information to the field. Bulletins will be issued, in cooperation with the aircraft industry, detailing the execution of the program and describing outstanding developments which result in appreciable conservation of materials man hours and machine hours.

AAF and the Bureau of Aeronautics will work largely through their field offices which, under the present decentralization program, have become the points of contact between aircraft contractors and the Armed Forces. AAF's field organizations consist of six Procurement Districts under the Commanding General, Materiel Command, Wright Field, Ohio. Procurement headquarters are located in New York, Detroit, Wichita, Los Angeles, Chicago and Atlanta. Each district is broken up into several area offices and, in addition, resident representatives are located in many aircraft plants.

General Inspectors of Naval Aircraft head the Bureau's field offices in Los Angeles, New York, Dayton and Ottawa. Naval representatives are also assigned to the six AAF procurement offices for cooperative and integrated action on joint problems. The committee states that "every effort has been made to avoid conflict and duplication of effort between the field activities of the two Air Services so as to facilitate and expedite action on contractors' problems."

Some specific items which will concern conservationists in aircraft are: encouraging the use of castings, stampings, heading and upsetting, hot pressing, welded assemblies and preformed materials, such as tubes, extrusions, and rolled sections. Questions to be kept in mind in planning conserving methods are suggested by the committee: Can a standard part or material be used instead of a special? Can savings be effected through redesign? Can two or more parts more economically be made in two or more pieces? Or vice versa? Can speeds or feeds be increased? Can forging dies be redesigned to reduce slug weight? Can cleanup tolerances be reduced? Can more economical protective coating methods be utilized? Can powder metallurgy be used?

Maj. Gen. Bissell Shifted

Maj. Gen. Clayton L. Bissell, former commanding general of the U. S. Army 10th Air Force in India, has been appointed Assistant Chief of Staff, Intelligence, Army Air Forces, the War Department announces. Gen. Bissell succeeds Brig. Gen. Edgar P. Sorenson, who has been given an unannounced assignment.

Stewart—WTS

(Continued from page 39)

Corporation bought the desired aircraft, leased them to WTS, which in turn assigned them to flight contractors under a form of revocable license which held the contractor accountable for maintenance of the aircraft assigned to him.

By October 31, a total of 5,169 aircraft had been purchased at an aggregate price of \$13,600,665. The average price of elementary planes purchased was about \$1,336; secondary type planes, \$6,780; cross-country aircraft of 240 h.p. or more, \$6,970; aircraft for instrument training, \$4,200 and Link trainers, \$8,600.

WTS officials believe that without this agreement "it would not have been possible to keep the training program in operation or to undertake the additional training involved in handling the flight indoctrination course for the Army Air Forces aviation cadet candidates."

An unexpected obstacle in the struggle for equipment was the Comptroller General's July 10 challenge that the purchase agreement was invalid on the ground that it was not a bona fide lease agreement. He alleged that it was instead a disguise purchase agreement, a "subterfuge designed to relieve the CAA of the duty and responsibility of submitting to the Congress an estimate for additional funds."

Two months of legal wrangling finally produced, in September, satisfactory agreement which differs from the original only in minor technicalities. In the revised version CAA eliminated the clause which provided that "upon payment in full by CAA to DPC of the amounts expended by it for . . . such aircraft or in connection with said lease . . . DPC will upon request of CAA transfer such title or interest as it may have in the aircraft then covered by said lease to CAA." But this deletion of any suggestion of disguised purchasing power was not acceptable either. At the instigation of the Comptroller General a "recapture clause" was inserted in the new agreement which stated: "It is specifically agreed and understood hereto that when the rent paid by the Administrator to Defense Corp. for one or more aircraft equals the cost of said aircraft . . . (plus direct expense and interest) Defense Corp. will, upon the request of the Administrator, transfer title to said aircraft to the Administrator."

Another equally substantial change was ordered in the agreement. In the original, rental payments were made over a period of two years at the rate of 1/24th of the total cost to DPC each month. In the new lease, the Administrator agreed to pay rental at the following rates: For each aircraft of the type used for elementary pilot training . . . \$60 per month; for each aircraft of the type used for secondary pilot training . . . \$300 per month, etc. These monthly rentals are equivalent to 1/24th of the plane's cost.

Resolution of the equipment problems was but a part of CAA's activity in the first half of 1943. Orderly flow between recruiting and training courses required many measures. One problem was pay; enlisted reservists in WTS were not carried on Army rolls nor had they as yet received a defined pay status with WTS.

(Turn to next page)

(Continued from preceding page)

Not only men enlisted for training but even those active in flight courses were forced to live at their own expense until, on May 7, 1943, the Deficiency Appropriation Bill provided \$3,500,000 to pay enlisted reservists "in and awaiting training" \$50 a month retroactive to December 15, 1942. As a corollary step, it was necessary to amend the Civilian Pilot Training Act, because after May 7 CAA was providing pay for military personnel.

At the same time, success in recruitment had developed a pool of 14,000 men, which could not be absorbed any faster than 600 a month by courses available. Gaps between each man's training courses became more and more extended.

Disposition of the 5,000-war surplus developed a close relationship between WTS personnel and the Army air training programs. In May, 1943, the Army and WTS agreed to offer enlisted reservists the following choices: if they had received one or more WTS courses they could: if not over 26, apply for reclassification as Army aviation cadets apply for call to active duty and assignment to non-flying duties in the Army Air Forces; obtain discharge to civilian life; or, elect to continue with WTS, undergoing a further physical examination. Men with no previous flight training were offered only the second and third alternatives.

In June, Army consent was obtained to place all Enlisted Reservist trainees on active duty. The men who had elected to remain in WTS were informed that on July 1 they would be called to Army classification centers for physical examinations as well as further screening tests. Those who pass would be returned to WTS to complete their pilot training on active duty. Any who failed would be assigned non-flying duties with the AAF.

On May 27, the pool of Enlisted Reservists numbered 13,504 men. These were finally allotted in the following ways: 1981 with no flight training were submitted to the AAF for call to active duty in a nonflying capacity or discharge to civil life at their own request; 303 elected call to active duty in non-flying capacities; 995 qualified as AAF aviation cadets; 8215 were called to active duty and directed to classification centers for screening for further WTS training.

WTS was also geared in more efficiently with the Navy's flight training program after April, 1943. The Navy planned to assign all its aviation cadets to WTS schools directly after their 12-week naval flight indoctrination course. The Navy wished to continue some degree of discipline and thought it would be desirable that flight and ground school instruction should be more completely standardized and correlated with Naval training techniques. To effect this, 90 of the best equipped WTS schools were chosen from the 230 then engaged in training Naval fliers. By centralization into fewer, but expanded, schools, the Navy's purpose was accomplished and WTS continued to train the same number of cadets for the Navy.

The WTS budget for 1942-1943 indicates both the extent of its activity and its complete adjustment with the Army and Navy aviation training programs. Total expenditures were \$98,482,612, including \$19,000,000 transferred to WTS by the Army and \$40,000,000 by the Navy. Courses completed numbered 113,196, with 3,648,950 estimated hours

Control, Ownership of Many Mexican Airlines May Change

THERE ARE STRONG current reports of many impending changes in control and ownership of a number of Mexican airlines, and the next 12 months should see a material change in complexion of the entire Mexican air transport picture. Among the lines expected to be merged or purchased are the Panini and the Woodside (Aeronautica del Sur) companies, each of which has extensive short-haul mileage but small and inadequate equipment. Various efforts are being made to combine groups of small companies into larger systems and there has even been talk of a Mexican air transport association. The vast bulk of the talking and planning is predicated on future airline development rather than on current assets, which are negligible in most instances. Equipment on many of the lines is sub-standard due to drying up of the second-hand and new outlets in the U.S., and shortage of spare parts.

An experimental permit (No. 261) was recently issued by the Dept. of Civil Aviation for P. A. Galindo to establish an air service between Pachuca and Huetutla.

Experimental permit No. 263 was recently issued for Jose Elizondo to establish an airline between Chihuahua-Ojinaga-Villa Acuna-Piedras Negras-Nuevo Laredo-

Reynosa-Matamoras-Tampico & Monterrey.

An experimental air service (Permit No. 260) has been inaugurated on a circular route Chihuahua-Cuauhtemoc-Ocampo-C. Guerrero-Chihuahua.

A recent important transfer of rights was consummated by Taxi-Aereo de Oaxaca which has sold to Aeronaves de Mexico, S.A., the franchise for the 410-mile route Oaxaca-Tehuacan-Huajuapen-Juxtlahuaca-Putla-Ometepec-Cachuatepec-Pinotepa Nacional-Jamiltepec-Oaxaca. This materially increases the total mileage of Aeronaves, (about 6,000 miles) in which PAA has an interest.

It is also understood without any official confirmation from the Dept. of Civil Aviation, that the Sarabia airline in Yucatan has been purchased by other interests with Antonio Ruiz de la Pena as general manager.

Compania Mexicana de Aviacion, subsidiary of PAA, is now using the airport built by American Airlines at Monterrey on its Mexico City-Nuevo Laredo route.

Aeronaves de Mexico is operating a new route between Maxatlan-Culican-Los Mochis-Navojua-Ciudad Obregon-Guayman & Hermosillo, with frequency of three round-trips weekly.

flown and 291,916,000 estimated miles flown. There were 40 major injuries and 34 fatal accidents.

Funds for the current year, while slightly smaller than for the last, were allotted in the same tri-partite manner: direct appropriation to WTS, \$29,400,000; War Dept. appropriation for training to be provided by WTS, \$19,404,000; Navy Dept. for training to be provided for WTS, \$40,216,239. The total—\$89,020,239, which was the greatest amount ever appropriated at one time specifically for CAA's pilot training activities.

In each case moneys appropriated to the Army and Navy were to pay for the Army's ten-hour training program and the Navy's elementary course given by WTS schools. The balance made available to CAA direct was "limited to the training of sufficient persons presently enrolled in the program to produce 7,200 instructor course graduates for the Army" and to pay the enlisted reservists until Sept. 1 when they were all to be on active duty.

At this time, the now clear-cut WTS program is running smoothly. The Army and Navy by October 31 had given and loaned WTS about 1,000 planes of the cross-country, liaison and secondary training types, to replace shortages which could not longer be filled in the open market.

Training is being given at 317 schools to about 14,000 AAF candidates and 3,000 Navy cadets a month. There are 4,947 instructors, 3,368 mechanics and 7,500 planes utilized in the WTS program.

More than 85% of the CAA pilot trainees assigned to the Army Air Forces during the past four months are qualified for advanced flight instruction. Of 7,028 who have been classified, 1,046 or

14.9% have been selected for combat air crew training, although they were originally accepted only for instructor or service pilot duty. Another 4,978 or 70.8% have been placed on active duty and assigned to continue training under CAA-WTS auspices for posts as Army flight instructors. A total of 962 or 13.7%, have been assigned to Air Forces Ground Crew training because of failure to meet physical standards for Army flyers or at their own request. Discharges were given to 42 or 0.6%. Of the original group, 1,300 remain to be classified.

That WTS results are satisfactory is indicated by an analysis of its graduates during their next stage of training at Army Primary School. Of five schools polled, only one reported the graduating percent of WTS-trained men lower than the percent of total entrants graduated. In the other four schools, the percent of WTS men graduated was from 7 to 21 higher than for the school as a whole.

New Names for Colors

A system of names for describing the colors of light has been devised to avoid confusion in identifying airport and other lights. Creator of the system is Kenneth L. Kelly, research associate of the American Pharmaceutical Association at the National Bureau of Standards, Department of Commerce. In 1939, Kelly announced the development of a system of names for drugs and medicines. Ever since that time the desirability of a similar system for lights has been recognized, says the Department. High-value hue names are used in the new system—for example red, pink, and bluish purple. Low-value names, such as brown or olive, are not used, neither are names that include a modifier—pale, weak, or brilliant.

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The Atlantic ferry bomber service (now the R.A.F. Transport Command) was pioneered by Canadian Pacific in co-operation with the British Ministry of Aircraft Production. The first flight took place in November, 1940.



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Throughout the C.P.A. System women workers are performing a steadily increasing percentage of essential war tasks. These tasks include maintenance of aircraft, wood and metal working, welding, painting and radio operating.

Canadian Pacific

AIR LINES

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Trippe Favors Single U. S. International Air Operator

Strong Line Needed to Compete With Monopolies, He Says

ONE STRONG American international airline, strong enough to compete on even terms with the great foreign flag air transport monopolies, was advocated Oct. 26 by Juan T. Trippe, president of Pan American Airways.

He spoke in New York at the World Trade Dinner of the 30th National Foreign Trade Convention at which he received the Captain Robert Dollar Award "for his distinguished contribution to the advancement of American foreign trade."

In urging early establishment of a national air policy, Trippe cited three alternatives, but left little doubt as to which one he favored.

"Shall we have 10 or 15 separate American airlines each competing with the other as well as with powerful foreign monopolies," he asked. "Shall we have three or four airlines—each restricted to a separate zone? Britain, France, Germany and Japan tried this scheme for several years and then abandoned it in favor of the single company system.

'One Strong Airline'

"Or shall we have one strong American international airline, strong enough to compete on even terms with the great foreign flag air transport monopolies—a community company—owned and controlled, not by any one aviation interest, but by all American transportation interests able to contribute, under an organization plan approved by the government.

"In reaching a decision, the government should not consider the position of any one airline or any group of airlines. The problem is too big for that. It is a national problem affecting the future, at home and abroad, of all American transportation. It will affect the future jobs and livelihood of millions of Americans. It will affect our foreign trade. It will even affect our national defense. The policy must only be determined by what is best for our country as a whole."

Trippe asserted that ten million new jobs must be created in the postwar period and that the opportunity to create most of them, "in my opinion, lies in a wide expansion of our foreign trade." In 1938, he pointed out, England's foreign trade was over 20% of her national income. Three out of five of the population directly or indirectly gain their livelihood from foreign trade. "If we here in the United States, with our resources and productive capacity, increase our foreign trade so that it directly or indirectly employs two workers in five instead of one in five, we will have created ten million new jobs."

Trippe said "man now stands on the threshold of the Age of Flight . . .



Juan T. Trippe (right) is shown receiving the Dollar award from James S. Carson, chairman of the award committee.

We in the United States should get our fair share of this vast future commerce.

"What . . . have the British done to become so eminently successful in foreign trade? What are they doing today to make a bid for leadership in the Air Age? . . . It is to be expected, with three out of five Englishmen directly or indirectly engaged in foreign trade. Britain should have a different outlook. Britain is world-minded. We have been mainly American-minded. Britain thinks in terms of ships and cargoes, of foreign trade and commerce. Young men are taught the economics of world trade. They are taught foreign languages and foreign customs. They look forward to careers in foreign trade. They go out to the far corners of the world to learn the techniques of commerce.

Cites 'Air Age' Geography

"Today, they are being trained in the modern geography of the Air Age. They are being taught to think of time and distance in terms of world air transport. Foreign trade is England's life . . . Britain knows that her future depends on securing her share of the greater world commerce of the Air Age. Britain will do this, and we Americans shall be glad of it. A strong Britain will be a cornerstone of world peace.

"In preparation, the British have already provided their foreign traders with the tools they will need. They have consolidated their separate cable and radio communications companies in one great system—British Cables and Wireless Ltd. . . . By establishing this common front Great Britain has made it impossible for foreign countries to play off one separate British communications company against another. One single community com-

CAL Gets Plane

Continental Air Lines took delivery of a Lockheed Lodestar transport Oct. 27 which will be re-conditioned and returned to commercial service as soon as possible, Terrell Drinkwater, CAL president, announced. This will give the line a total of four Lodestars and probably will make possible the opening of a one round-trip a day service between Denver and Kansas City, a route certificated some months ago.

pany negotiates all her foreign communication franchises.

"In the same way, the British government has concentrated all overseas air transport in a single strong community company. Formerly, there were four British international airlines competing with one another and with foreign airlines as well. When the other foreign trading nations consolidated their overseas airlines to better meet world competition, the British followed suit and merged their international airlines. Now Britain has one single powerful unit—the British Overseas Airways Corp. Behind this great air transport company is the full power and prestige of the British government. The airliners of British Overseas Airways, manned by British crews, will fly all the postwar trade routes of the world. In dealing with foreign governments, British air transport enjoys the same advantages that British communications has had since Cables and Wireless was created.

'All Nations Preparing'

"I do not mean to imply that only the British are preparing to effectively compete for world trade in the Air Age. Far from it; all the trading nations will be in a strong position. World air transport in this Air Age will be truly a battle of the giants. The Dutch are represented by their KLM, the Russians by their Soviet Air Trust, the French by Air France, Sweden by their SLLA, Canada by Trans-Canada Air Lines, South Africa by South African Airways. If Germany, Italy and Japan are permitted to operate at all, we will have also the Lufthansa, Ala Littoria and Dai Nippon. Many of these international systems are government-owned monopolies. Some are privately owned and function under government regulations as great public utilities."

Trippe asserted that the U. S. should have a common international communications company, similar to Britain's Cable and Wireless. "Equally important, our government should now formulate a national policy with respect to international air transport. While we invented the airplane, and while we are today the greatest military air power in the world, we alone among the trading nations have no official policy to guide our overseas air transport effort in the Air Age."

Books Donated by TWA

Hundreds of employees of Transcontinental & Western Air, Inc., contributed the 350 aviation books recently presented to Ross High School, Fremont, O., in memory of Lt. Col. Jack Zimmerman, former TWA Atlantic Division chief pilot, who was killed Nov. 2, 1942.



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CURTISS-WRIGHT TECHNICAL INSTITUTE...BEFORE THE WAR • DURING THE WAR • AFTER THE WAR

Continental's Big Horn Route Is Real 'Milk Run,' Writer Finds

By W. W. P.

THE DISTINCTION of having one of the nation's most interesting "milk runs" goes to Continental Air Lines. The "Big Horn" route between Albuquerque and El Paso into eastern New Mexico is unlike any other route in the country—at least that this writer has found.

Not so many weeks ago it was our pleasure to take the most up-and-down short-stop airline trip we know about, from Colorado Springs south to the Rio Grande. On a flight that takes most of the day, somewhat over 800 miles, the longest hop is one hour. The shortest is seventeen minutes. All in all there are eight stops. But the fascinating part of the route is the big bend into New Mexico which takes in Roswell, Hobbs and Carlsbad, all small towns scattered out in that vast area of the southwest where the highway provides just about the only other practical form of transportation.

The Civil Aeronautics Board was skeptical when Continental applied for the route. How could those three small towns possibly make such a route economical? You can just imagine the hesitation and deliberations of the CAB to permit this alternate routing to the through Albuquerque-El Paso service.

But it doesn't take huge populations to support an airline service. What it takes are communities with poor linking surface transportation and a fair number of people who regularly want to go places. And in New Mexico the people travel. They want to get places easily and in a hurry.

'Like Train Commuting'

Frankly we felt like a visitor on a suburban train except that here the stops are a hundred and a hundred and fifty miles apart. But everybody seemed to know everybody else. It's a friendly country out that way. At Roswell a man whom everyone seemed to know walked casually into the Lodestar. He had a hat but no coat, no briefcase, no baggage. He was just going to Hobbs, a mere hundred miles down the way. At Hobbs he put on his big hat and his place was taken

by another one-stop passenger who had only a magazine with him. This passenger went to Carlsbad—sixty-five miles away.

We've been on a great many airlines on several continents, but nowhere before have we found such a casual, informal, homey, attitude toward an airplane service. CAL operates only one trip a day each way over the "Big Horn," but there's never a vacant seat any more and the bulk of the traffic is short-haul. It's a real milk run. If the plane is late, nobody cares. Just so it comes along in due course, that's all that matters.

Continental's milk run is just as much air transportation as is United's mainline across the country or American's or TWA's. But it's as different as a milk run on a train from a deluxe Pullman. The service is there, to be sure, but it's just for plain folks who are just commuting a hundred or two hundred miles to handle some business at Albuquerque or sell some cattle in Carlsbad.

'Surface Transportation Poor'

We never realized before how poor surface transportation is in many parts of the country. From Roswell to Albuquerque it's one hour by plane (160 miles), four or five hours by automobile, or you can leave by train at 10 p. m. and arrive the next afternoon—a tortuous trip. To get from El Paso to Carlsbad it's an hour by air, or five hours by bus, or you can leave at 10.45 p. m. by train and arrive the second morning—just to get 160 miles. The train trip requires traveling over half the state of New Mexico.

Denver is four hours and fifteen minutes by air from El Paso, by the direct route, but 36 hours by train and longer by bus. That's why CAL is so popular. People in the East rarely are able to understand the inadequate surface transportation facilities of the West, and many of these facilities are bad because the terrain is such a barrier. For example the South and North rims of the Grand Canyon are only 12 miles apart, but the closest highway connection is 256 miles, and the train is a matter of days.

Louis Fahrenkamp, CAL's alert sta-

'Fly the Routes; Find Out What the Public Wants,' Urges AA's Chas. Boillod

"Fly the main trade routes and find out what the traveling public actually wants."

This is vital to any business-like development of postwar airlines, both domestically and internationally, Charles Boillod, director of foreign travel for American Airlines, stated in an interview last fortnight in Los Angeles.

Boillod, who joined AA in 1939 following 12 years with Pan American Airways, feels that, internationally, there will be a limited number of markets capable of producing commercial aviation profits.

"Don't overlook the fact that our airlines represent private enterprise and must make money," he observed. "Going abroad is a new venture which costs more money than domestic development. The profitable international operation will center between the main business centers such as London or Paris and our leading cities. Cargo follows the same flow as passengers."

Citing a specific example of trade potentials, Boillod said Australia has a national population of 7,000,000, the same number of people as in the city of London.



Boillod

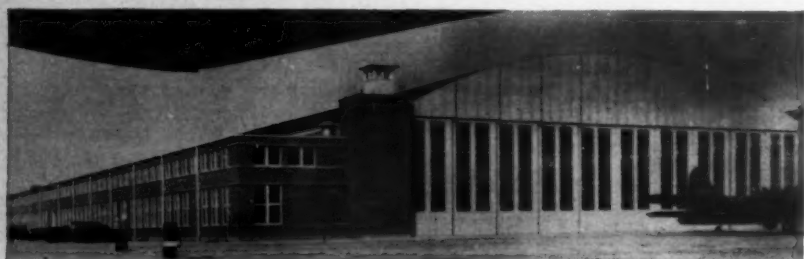
tion manager at El Paso, and Seale Fuller, the district traffic manager, told us much of the above information. They want more seats to fill. The traffic is there. They also told us of a "believe-it-or-not" fact which startled us as it may you, to wit, New Mexico's capital of Santa Fe has no train passenger service. The nearest connection by rail is 20 miles away. In country like that, an airline can do very well.

As for the future, the traffic outlook is excellent. People in that country think no more of traveling 300 miles than easterners do of traveling twenty. Automobile driving is monotonous and tiresome. Cars aren't needed in the smaller western towns anyway. They'd much rather hop on a plane. What many of them want is to fly to their destination in the morning and return home in the evening. The one vehicle that will provide competition to CAL is not the automobile or the railroad train or the bus—it will be the private airplane. And by fostering private airplanes, CAL can act as grand-daddy and increase its total business, for one type of airplane helps the other in the long run.

CAL has one pilot who's a perfect whiz on landings. He's Capt. Ira Olsen, twenty years a pilot with 15,000 hours on the log book. At all eight stops on our milk run, Olsen put those Lodestar wheels on the runways so gently it was difficult to tell when the plane hit the ground. He never missed a perfectly smooth landing once.

If you want to see air transportation down-to-earth, take a day off sometime and fly on CAL's "Big Horn." You'll sure see a hunk of country and a lot of mighty swell home folks.

Continental's New Modification Center



Continental Air Lines, which has used a converted National Guard hangar for its modification work since July 17, 1942, began production in this new center in October. B-17 Flying Fortresses are handled exclusively in this plant, located in Denver.



Air-cooled Engines to Power Brazilian Training Planes

NO FINER TRIBUTE could have been paid to Franklin aircraft engines than their selection to power the training planes in which many Brazilian military and naval pilots will henceforth receive their primary training.



The engine selected for this purpose is the newest model of the famous Franklin "65"—a horizontally-opposed, air-cooled, 65-horsepower engine. More than 5000 of these engines have already proved themselves by hundreds of thousands of hours flying time in light planes the world over. Their record for smoothness, dependability and economical performance made them a logical choice for purchase in quantity by the Brazilian government.

Aircooled Motors Corporation is proud that its Franklin engines are to serve the United States' great ally and neighbor, Brazil—and confident they will serve her well.

AIRCOOLED

MOTORS CORPORATION



SYRACUSE, N. Y.



AIR TRANSPORT...for the Coming Pacific Offensive

Some day... soon, we hope, Uncle Sam will release, upon the Japs, the full pent-up fury that's been rankling in every American heart since Pearl Harbor. And, although every plane, train and truck in the West is working double time now, that will be nothing compared to the job they must do when the time comes for turning America's full might to the Pacific.

Western Air Lines has long provided vital air transport services on two Pacific fronts: one, flying military cargo and personnel to camps and bases on the war front; the other, speeding essential passengers, mail and express on the home front.

Since August 21, Western Air Lines has been awarded routes from Los Angeles to El Centro and to San Francisco, and has purchased the routes and equipment of Inland Air Lines. These routes are now ready to be placed into operation, as soon as C.A.B. approval and additional equipment can be secured.

Looking ahead still further, Western has also announced plans for future extensions to Seattle, and Alaska... which can be made ready for today... or Tomorrow.

General Offices: Lockheed Air Terminal, Burbank, Calif.



WESTERN AIR LINES

America's Pioneer Airline

'Air Age Education Research' Sponsored By American Airlines

A group of leading educators, air transportation executives, aviation engineers, and pilots launched Air-Age Education Research Nov. 5 in New York City "to carry on research to advance the understanding of air transportation, and to prepare authoritative material on aviation for the use of teachers in schools and colleges, and for the general public." American Airlines, Inc., is sponsoring the organization.

"It has been apparent for some time that there is a need for a sound and conservative approach to the presentation of the multitude of problems which the development of air transportation is creating in our society," said Charles A. Rheinstrom, vice president of American Airlines, in explaining the aims of the project. "It is essential for the welfare of the nation that children in schools, youths in colleges, and people in every walk of life understand these problems so that solutions may be arrived at which will be most beneficial to our nation as well as to all civilization throughout the world."

He said the research group would work in consultation with specialists in the field of air transportation in the development of materials which will be most useful to teachers and to the public. Thus Air-Age Education Research will act as liaison agency, bringing air transportation engineers and technicians into closer relationship with the leaders of schools, colleges, and adult education; he added.

Director of the group is Dr. N. L. Engelhardt, Jr., who has been an educational consultant for the Civil Aeronautics Administration in the preparation of the popular Air-Age Series of high school test books. He is the author of "Education for the Air-Age", "New Frontiers of Our Global World", and the "Air World Map."

Members of the advisory board of Air-Age Education Research include Dr. Alexander J. Stoddard, Superintendent of Schools in Philadelphia; Dr. Edwin A. Lee, Dean of the School of Education, University of California at Los Angeles; and Dr. Ben M. Cherrington, Director of the Foundation for the Advancement of Social Sciences.

In addition to Dr. Engelhardt and the advisory board, the following executives of American Airlines attended the organization meeting: A. N. Kemp, president; Ralph S. Damon, vice president and general manager; William Littlewood, vice president-engineering; and Charles A. Rheinstrom, vice president-traffic.

PCA Claims Cargo Record

Pennsylvania-Central Airlines is carrying one-fourth of all domestic air cargo, the company claims. The efficiency of PCA's cargo operations are said to have increased to such an extent that more than 250,000 miles are flown monthly as compared to 83,000 miles in April, 1942, when the military lines were set up.

PCA claims to be the first contract air cargo carrier in the United States. Its cargo organization was set up and operations started April 1, 1942.

Prevent deterioration of aviation gasoline in storage



THE EXTREMELY VOLATILE lighter ends of high test gasoline pose problems for the airport . . . both in cost of vaporization losses in storage, and in deterioration of gasoline with resulting sacrifice of engine performance.

It is the concern of airlines, fuel companies and airport authorities alike.

Aqua flotation storage and fueling provides a "closed" system, consequently there is no vent for the escape of vapors or the breathing in of moisture-laden air.

Instead of evaporation losses, as with conventional pumping systems employing the finest types of vents, flotation systems prevent escape of volatile gases and deliver the full power of the fuel to the plane.

There are many specific advantages which have brought about the choice of this system for the most modern military and commercial airports. If you would like a copy of the Aqua airport fueling manual so you can acquaint yourself with them, we shall be glad to mail it to you.

*Photograph by courtesy
of American Airlines*

AQUA *Systems*

AQUA SYSTEMS, INCORPORATED
382 Gerard Avenue, New York 51, N. Y.
(Subsidiary of Neptune Meter Company)

Women in Air Transport



'Bunny' Davis

(This is the fourth of a series of articles on women who are doing an outstanding but little publicized job for the U. S. airlines.)

EDWINA "BUNNY" DAVIS now occupies a desk in a corner of the lobby of ultra-modern Washington National Airport and handles passenger relations for Pennsylvania-Central Airlines. Among other things, she smooths tempers ruffled by priorities, finds hotel accommodations, makes train reservations, etc.

It's a far cry from the day 13 years ago when she entered the aviation business as one of the first airline hostesses, flying out of old Washington-Hoover Airport. There was no terrific crush of war business such as now flows through Washington airport. "You even had to beg people to accept complimentary tickets for trips to nearby cities," she recalls.

It was in 1930 that "Bunny" Davis joined Eastern Air Transport as a hostess. Within a year, she'd become an airport hostess, doing somewhat the same work as she does today, handling passenger relations. Her association with Pennsylvania Airlines, predecessor of PCA, began in those days of the early 30s when it was the only other line operating out of Washington. Since then she has worked in nearly every PCA station.

Illness forced her to leave her job four years later, and by 1940, feeling that she had been away from the airlines too long, she joined PCA in Detroit, becoming another "first"—one of the first women to become an airline reservationist, and first night supervisor. Again she had to leave her job because of illness, returning early this year to Washington to take over the job of passenger relations, an especially important duty in wartime.

Her office is in a corner of the terminal building, where PCA maintains a lounge where passengers can rest, read or write. Her activities carry her over the entire

Airline Commentary

Present plans are to issue an examiners' report in the feeder-pickup investigation . . . This, we think, is a good idea, for it will give interested parties a chance to shoot at the examiners' findings before the Board issues its final "declaration of policy" . . . And from the rumblings we hear around the industry, the Board's report had better be good . . . Interested parties point out that this investigation was the Board's own idea . . . Parties were invited to participate, and spent thousands and thousands of dollars in doing so . . . So, they expect something definite—not a lot of "claptrap," as one wellknown executive expressed it to us . . . What is wanted is a frank statement—if the feeder-pickup situation looks promising to the Board, the industry wants to know about it . . . On the other hand, if it doesn't look good, the parties want to be told this, in frank terms . . .

Ed Bern is always in the news . . . Now he's filed application for an air route between Washington and Dublin, Ireland . . . Ed was former publicity chief for American Airlines and later was with Hughes Aircraft . . . And when he goes after something he ain't fooling . . . CAB had better lock the doors . . .

How many of you have struggled along virtually penniless while waiting for the accounting department to clear your expense check? . . . A humorous letter on this subject has just come to light, and although it's over a year old, we're going to reprint it here . . . It was written by Ed Sullivan of Pennsylvania-Central Airlines . . . Ed, whose sense of humor is well known, penned the following epistle to the PCA accounting department:

"I am writing to you at this time in regard to a matter of policy that I believe you will agree will be of much interest if you will see fit to establish it. The matter to which I refer is one of the grimmer subjects of our existence. I refer specifically to death. It is my suggestion that a policy be established whereby all employees, officers, directors and associates be advised in cases of death in our ranks by the issuance of a black bordered bulletin of notification. With a policy of this type predetermined, our deceased brethren would have the assurance that we would pray deeply and reverently for the repose of their respective souls.

"This suggestion is prompted by intuition, I might say, as I am sure there must have been a death in the Accounting Department on or about Jan. 6, 1942. I referred to your office an expense voucher, covering my expenses (on which I lost money) for the month of November, 1941. The envelope containing the voucher was addressed to you and sent by our fast, efficient and dependable company mail service. I am sure that nothing short of unexpected demise of one or more treasury 'watch dogs' could have possibly delayed this matter.

"Of course you understand that my interest in this matter is purely altruistic, as I am independently wealthy, and, as a matter of fact, an entrepreneur in many varied fields of industry. At times, however, I do feel the 'pinch of the penny' as it is called in the vernacular. Food for my brood, which is rapidly growing, is of minor interest to me. However, I find it easier to explain away infidelity to my spouse (of four years today) than to explain why we have no food. I hope you can fully appreciate my problems of explaining, as I feel sure you can.

"If you agree with me on this matter of policy, as I am sure you will, I would like to give you the name of a very dear friend of mine, from whom you might secure a supply of death notices. His name—Berry M. Deey, dealer in unusual and novel notices of demise."

P. S. Ed got his check pronto . . . Maybe you'd better copy this for future use . . .

When was the first birth of a baby aboard an airplane? . . . Northeast Airlines claims the distinction . . . On June 18, 1943, northbound trip 2 was five minutes out of Portland, and a doctor and ambulance were supposed to meet it at the ramp . . . But they didn't make it and the baby was born aboard the plane, the birth attended by Stewardess Ellen Murdock and Station Manager Al Crowder . . . Unfortunately, the story doesn't have a happy ending, because the baby was pronounced dead at birth, something which the mother had been warned by her doctor to expect . . . The mother recovered and she and her husband have been frequent Northeast passengers since . . .

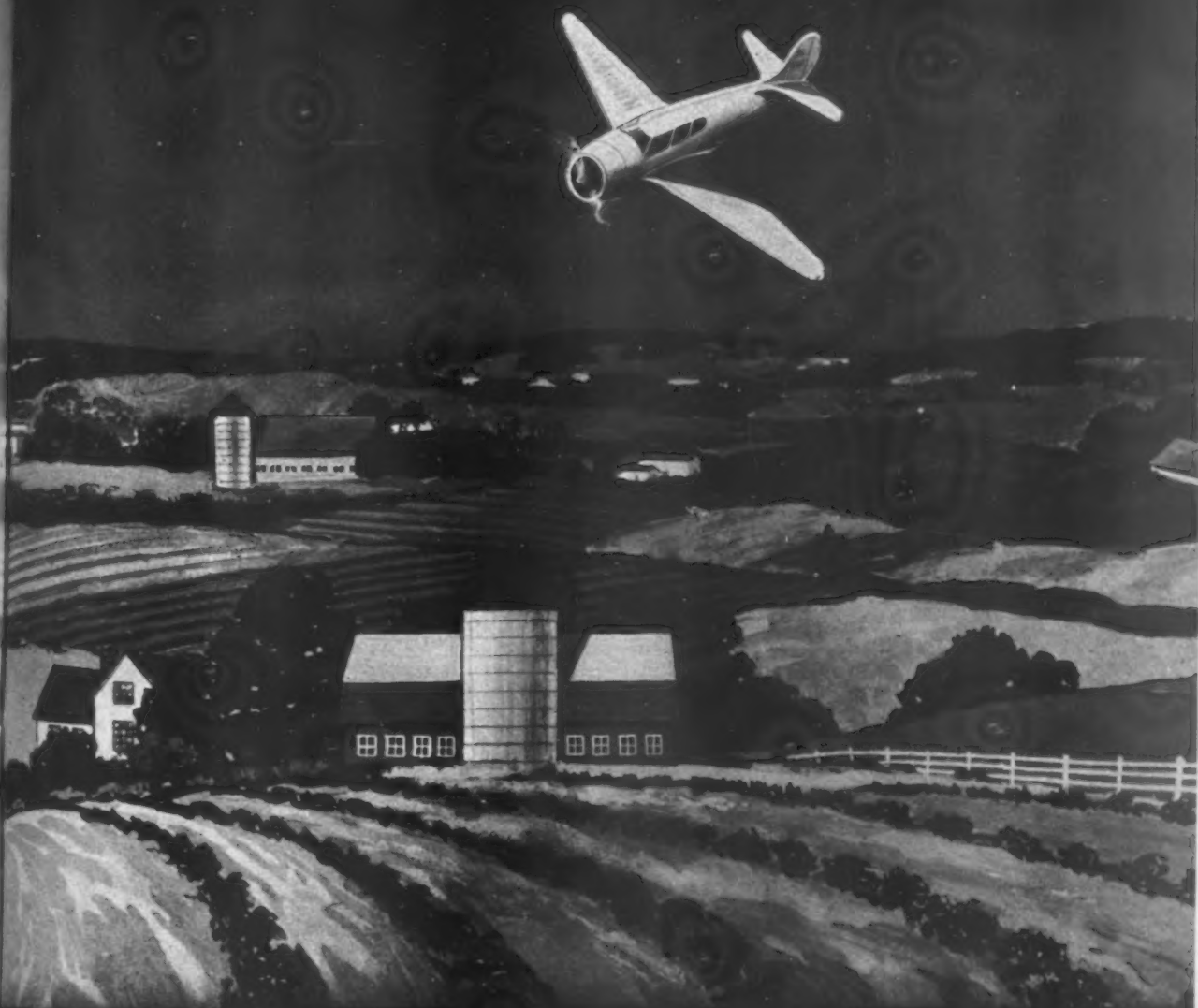
Eric Bramley

building—she has no set limits, no stated duties. Small services like keeping a razor in the drawer of her desk for the use of servicemen who arrive when the terminal barber shop is closed, and sewing buttons on their coats, are her stock in trade. She treats complaints arising

from war-harried tempers and war-marred service with equal patience. When priorities cancel seats, she makes arrangements for hotel rooms, or train space. She wires relatives or passengers, advising them of delays. All in all, she has very little time to think of the good old days.

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HOME *Straight as an Arrow...*

With the unconditional surrender of our enemies,—which must be won by our blood, sweat and toil—, will come peace and the post-war period of reconstruction and development.

Aviation, now the No. 1 industry of America, will continue to lead the way. From the centers of our great cities to the vast expanses of our rural sections, Airplanes will play a leading part in our lives. Distances between home and place of business will be of much less importance, as the speed and efficiency of Aircraft will make commuting practical and economical. You can go home straight as an arrow, from wherever you are.

Advanced engineering and foresight will continue Jacobs leadership in the production of dependable and economical Aircraft Engines — *practical engines* for the private owner, the business concern and the "feeder" Airline.

JACOBS AIRCRAFT
Engines

POTTSTOWN - PENNSYLVANIA U.S.A.

CAB Receives 20 More New Air Route Applications

TWENTY applications for new and amended routes were filed with the Civil Aeronautics Board during the period from Oct. 23 to and including Nov. 4, CAB records disclose.

Among the applications filed is one by Transcontinental & Western Air, Inc. which seeks to amend an earlier request for foreign service. TWA now seeks to include Cairo, Egypt in its proposed service to France and the United Kingdom.

Believed to be the first department store to envision the use of helicopters in the delivery of merchandise to its chain of stores in New England, William Filene and Sons of Boston filed for extensive routes, in non-scheduled operations, in several New England states. The applicant states it would use the roofs of several of its stores for landings.

Shipments of baby chicks would be flown from Vineland, N. J., to points in 11 mid-western and east central states if the application filed by the Vineland Flying Service is approved. This applicant also asked for seasonal routes for tourist traffic along the eastern seaboard.

A brief description of all applications filed follows:

Air Cargo

Joe Bos of Marshalltown, Iowa, filed for this company for routes between Chicago, Des Moines, Marshalltown, Omaha, Grand Island, Pueblo and Denver and between Sioux City, Mason City, Waterloo and Moline, both in scheduled and unscheduled operations. Applicant asked that hearing be held in Des Moines. (Docket 1128)

All Virginia Air Feeder Lines

This company through John P. Beacom, of 800 American Bldg., Washington, 4, D. C., filed for four routes in scheduled transport of mail, property and express between Washington, some two score intermediate points and terminal points Bluefield, W. Va., Hot Springs, Va.; Wheeling, W. Va. and Huntington, W. Va. Applicant proposes to use conventional aircraft and helicopters. (Docket 1132)

Belt Aviation, Inc.

This company of 135 S. LaSalle St., Chicago, asked routes between Chicago and Springfield; Chicago and Decatur-Champaign; Springfield and St. Louis; Chicago and Madison for air transport of persons, property and mail. (Docket 1124)

The Blue Line

Applicant through Arthur M. Marshall, 458 Bridge Street, Springfield, Mass., desires to engage in scheduled service between terminal points Springfield and Westerly, R. I., and charter service within 25 mile radius of Springfield, East Longmeadow, Mass., Somers, Stafford, Williamamta, Norwich, New London, Conn., and Westerly, R. I., and points in all of the 48 states. Applicant would use suitable aircraft and helicopters. Antonio O. Pajer is general manager of company. (Docket 1140)

Carolina Airways

This company through S. A. and W. B. Chalk, partners, Paragon Bldg., Morehead City, N. C., filed for four routes in transport of mail,

persons and property between Beaufort and Boone, N. C.; Beaufort and Asheville; Wilmington, N. C. and Norfolk, Va.; Norfolk and Charlotte, N. C., and various intermediate points. Applicant would engage in scheduled operations and use multi-engine craft. (Docket 1139)

Continental Air Lines, Inc.

This carrier seeks a route between terminal-Tulsa and Hobbs, via Shawnee, Oklahoma City, Lawton, Wichita Falls and Lubbock. (Docket 1126). In another application, Continental asks a route between Denver and Los Angeles via Grand Junction, Cedar City and Las Vegas. (Docket 1131)

Wm. Filene's Sons Co.

The applicant, a Boston department store operator, filed an application for six helicopter routes out of Boston for non-scheduled transport of express to the leading cities of New England. Routes asked are from Boston to the following terminal points: Springfield, Mass.; Worcester, Mass.; Providence, R. I.; Lewiston, Me.; Burlington, Vt., and Laconia, N. H., and intermediate points. The company, claiming to be the first department store to file for such a service, would use helicopters capable of landing on the roofs of applicant's buildings in areas as small as 500 square feet. (Docket 1125)

Gilbertville Trucking Co.

Wilfred J. Vachon, company president, of Hardwick Road, Gilbertville, Mass., asks for a certificate to transport mail and property in scheduled operations between Ware, Mass. several intermediate points and terminal points—Washington, D. C., Chicago and St. Louis. Applicant also asks certificate to engage in non-scheduled service over irregular routes within 15 miles of Ware, but not including Springfield, Mass., and unnamed points in all states east of the Mississippi. Multi-engine planes and helicopters would be used. (Docket 1129)

Magnolia Airways

This applicant of Magnolia Beach, Texas, through C. M. Foster, a member of CAP, asks for a certificate to engage in scheduled trans-

Plan to Convert Bombers To Carry Day-Old Chicks Broached at Farm Meeting

Postwar conversion of bombers into delivery vehicles for agricultural interests as a means of speeding the rehabilitation of Europe's devastated farming areas was recommended by Maryland farm leaders at a recent conference in Baltimore.

Noting that the unit cost of chickens and turkeys is slight as compared with that of cows and hogs, Dr. M. A. Jull, head of the poultry department of the University of Maryland, declared that if proper air-conditioning equipment were installed, bombers could carry day-old Maryland chicks, as well as eggs, to rehabilitate the flocks of Denmark, Greece, Poland, Holland and other needy countries.

"Rebuilding the poultry flocks will be the quickest way to provide meats for the hungry; much speedier, for example, than attempting to rebuild milk and beef herds," he said.

portation of persons, property and mail from intermediate points to Houston, San Antonio and Corpus Christi. Applicant proposes to operate a feeder service and would use 10 passenger planes. (Docket 1130)

Mountain Airways Co.

Located at Combs, Perry County, Ky., this applicant filed for a certificate to transport persons, property and mail over a group of routes radiating from Hazard, Ky. (Docket 1122)

National Airlines, Inc.

Carrier filed two applications, one for a route between terminal points New Orleans and Kansas City, via Natchez, Monroe, Little Rock and Springfield, Mo. (Docket 1134) and between the same terminal points via Shreveport, Texarkana, Fort Smith, Muskogee and Tulsa. (Docket 1135)

Owosso-Flint Bus Lines, Inc.

This bus operator of 109 E. Comstock St., Owosso, Mich., filed an application for scheduled air transportation, by helicopters of persons, property and mail between Flint and Chicago; Kalamazoo and Chicago; Flint and Lansing; Flint and Grand Rapids; Owosso and Saginaw; Owosso and Detroit. The application, involving 643 miles, was filed by Robert Reakes, Jr., vice president of the company. (Docket 1121)

P & B Transfer & Storage Co.

Mrs. Ruby D. Parotte, president of this company located at 417 South Main St., Memphis, Tenn., filed an application with CAB for air transport of household goods and related articles from points in Ark., Tenn., and Miss. to unnamed points in 24 states and District of Columbia. Applicant has had 16 years experience in transfer by truck of household goods and related articles. (Docket 1133)

TWA

This carrier filed three applications, one for a route to the United Kingdom, France and Egypt (Docket 1060 amended) and one for a stop at Emporia, Kan., on its transcontinental route between Los Angeles and New York. (Docket 1137), and for a route between Cleveland and Toledo, via intermediate points of Lorain and Sandusky. (Docket 1123)

Union Air Lines

With offices at 2228 Georgia Ave., N. W., Washington, D. C., this company filed for 6 routes for transportation of mail and property between the following terminal points: Washington and New York; Washington and Los Angeles; New York and Chicago; Chicago and New Orleans; Chicago and Seattle and Seattle and Los Angeles. (Docket 1127)

Vineland Flying Service, Inc.

Nicholas Tuso, Jr., P. O. Box 55, Vineland, N. J., president of this company, filed application asking certificate to engage in non-scheduled charter service between Vineland, N. J., and Philadelphia to points in 11 states. Applicant proposes to fly baby chicks. Applicant also seeks for a summer passenger route between Philadelphia and Atlantic City, Cape May, and Wildwood and a winter route to Florida coast cities. (Docket 1138)

Washington Motor Coach Co.

Applicant located at 300 Central Terminal building, Seattle, Wash., filed for six routes for transportation of persons, property and mail in scheduled operations. The terminal points on the routes are: Port Angeles to Butte; Seattle to Walla Walla; Portland to Eastport, Idaho; Ellensburg, Wash., to Oroville, Wash.; Seattle to Bremerton, Wash., and Port Angeles to Victoria, B. C., Canada. The company, which now operates approximately 12,000 motor bus miles daily, proposed to use helicopters or similar aircraft. (Docket 1129)

PIONEER PARACHUTES

Selected for the Job

From the very beginning Pioneer's development, design and engineering has played a vital part in the advancement of parachute safety. That is why today, after rigid tests under all types of conditions Pioneer Parachutes are universally recognized and accepted as standard.

Pioneer Parachutes provide the split second timing and precision performance that saves lives. Packed thin, they are compact and snug fitting; light, they save weight without sacrificing strength; require less seating space, fit easily into cramped quarters; permit easy escape.

No wonder the boys who wear 'em . . . who are responsible for the growing list of air victories . . . and the officers who direct air operations all agree that Pioneer Parachute will do the job.



IN PACK



IN ACTION

PIONEER FOOL PROOF - FOUL PROOF PILOT CHUTE

Attached to the apex of the main canopy, there are no parts to break, no exposed springs to pinch or bind, no ribs to poke through or hook under the main canopy skirt or jam or bind pack cones. In pack, it folds wafer thin. In action, it is instant, powerful, positive.



Model P1-B-24

Ultra thin back type chute. 20% less weight: without sacrifice of strength, occupies 50% less seat space than the ordinary chute.



Model P3-B-24

Embodies all the features of P1-B-24 but does not have the roll on, shoulders. It is standard Equipment of U.S. Army and Navy.



Model AN-SS-24

Standard 24 ft. canopy, seat type parachute, as used by the U.S. Army and Navy. Curled hair seat cushion and back pad.



PIONEER PARACHUTE COMPANY, INC.

MANCHESTER, CONNECTICUT, U. S. A.

CABLE ADDRESS: PIPAR

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Littlewood Sees Today's Planes in Use After War

THE AIRLINES need look for no substantial change in the equipment picture until the end of the war and probably not for six months after the cessation of hostilities, in the opinion of William Littlewood, vice president in charge of engineering, American Airlines.

Littlewood gave this somewhat gloomy prediction last month in his appearance before the Institute of the Aeronautical Sciences in Washington. The air line engineer spoke on the subject, "realistic Air Transport Planning."

"Let us realize," Littlewood said, "that the commercial transport planes with which we will work in the period immediately following the close of the war will be the same airplanes that we now have, plus somewhat less efficient airplanes of the same type, plus airplanes of other types less efficient than we had reason to anticipate before the war."

He observed that the reason for this situation is obvious, because the planes, over and above those the transport industry now has, are those to be acquired by conversion of existing transport models.

'Sacrifice of Empty Weight'

"These airplanes cannot be converted to satisfactory commercial planes, except for specific cargo use, without some sacrifice of empty weight. There is no reason to suppose that they will be licensed at gross weights in excess of those to be anticipated under the present regulations. The military weights at which they are operating will not be realized in commercial service in spite of any apparent assumptions to that effect," Littlewood declared.

"We must also recognize in our planning that unless early action is taken to accomplish the flight and other test determinations necessary under existing Civil Air Regulations, and unless early action is permitted on the part of the aircraft manufacturers to design and fabricate conversion parts, a period of six months may elapse after the cessation of hostilities before the air transport industry can expect to receive any additional airplanes than they now have plus the few that may be returned to them from their former fleets," he pointed out.

Littlewood said this condition can and should be changed just as soon as such a program is consistent with the best interests of the prosecution of the war. The date, he said, will be difficult to determine and the air lines must accept the fact that it may not come until the end of the war is very close at hand.

Expects Slow Delivery

"Even if the engineering and fabrication of parts for conversion were permitted today and at the close of the war we found the aircraft manufacturers ready to make the most rapid changeover to commercial types, it is my opinion, based on the estimates of some of the aircraft manufacturers, that a period of three months might elapse before any converted airplanes would be available to the airlines and that the rate of delivery of such planes would be accelerating too slowly to meet the desires and needs of the transport operators during

the balance of the first year after the war," he asserted.

Littlewood pointed out that the possible crop of substantially modified and improved transport airplanes made from the basic existing military and commercial transport models probably will not be available for one or two years after the war. The crop of entirely new and substantially improved transport planes eventually superseding and replacing the converted and possibly the improved military transports will not be available for at least two years and more likely three or more years after the close of the war, he believes.

What Will Planes Be Like?

Littlewood said that the transport industry does not now know what these converted airplanes will be like. The manufacturers cannot tell because they do not know at what weights the airplanes will be commercially licensed nor do they know what changes will be required under the applied Civil Air Regulations.

"It is my earnest hope that this uncertainty can be eliminated in the very near future by cooperative efforts of the Civil Aeronautics Board, the military services and the manufacturers. I am sure this step can be taken immediately without any sacrifice to the war effort," he emphasized.

CAB Examiners Work on Feeder Report

The Civil Aeronautics Board examiners who listened to three weeks of testimony during the Local-Feeder-Pickup hearings hope to make their report and recommendations to the Board by Dec. 1.

Work of digesting and analyzing the mass of material which was presented by a wide variety of transportation interests has been underway for three weeks by Examiners William J. Madden and Albert F. Beitel. If they are successful in getting their report to the Board by Dec. 1, the Board's far-reaching, policy-making decision may be handed down late in December or early next year.

The testimony and evidence is filled with many divergent views. On the other hand, there were presented certain patterns of similarity, particularly from groups with more or less similar interests and backgrounds.

There is the program of the transcontinental carriers to develop the local business contiguous to their existing routes. Filing of many applications by the larger carriers indicates their intention to carry out this development. Their position, on the other hand, is opposed by some of the so-called regional carriers who expressed the belief that much of the local business should go to the smaller carriers.

Fixed base operators, many of whom are now operating pilot training schools, attempted to convince the Board that because of their trained personnel, equipment and repair facilities, they would be ideally situated to enter the local and

Delta's Record

What is unquestionably an all-time load factor record for the first fifteen days of an entirely new operation was chalked up by Delta Air Lines for the 15 days following the inauguration of its new New Orleans-Dallas route which opened Oct. 15.

With one round-trip daily, and not too much advance promotion, Delta scored a 95.4% load factor from New Orleans to Dallas, and a 74.5% load factor eastbound. "We'd have been happy to get up to a 30% load factor for the first 15 days after the opening of a new route seven or eight years ago," commented C. E. Woolman, v.p. and general manager of Delta.

feeder field of air transport service when the war ends. Many of these operators have applications on file, some of them as groups and others as individuals. One of the points they stressed most often centered about the utilization of pilot and mechanical skills which are being developed by the war. They made a strong plea for some affirmative action now on policies so that personnel could be held together in the prospect of early conversion to postwar aviation as soon as hostilities cease. They asked the Board to use its influence to have released from the Army now certain types of planes which could be used in experimental operations and if the war effort would permit, design and construction of types which might be required for shorter-haul experimental services.

Use of the airplane, particularly the helicopter, for integration with existing surface transportation, especially buses, is envisioned by many of the large bus companies. Their case was effectively presented by Greyhound Corp. of Chicago which has applications on file for 78 routes covering 49,000 miles of travel. Greyhound proposes to use the helicopter almost exclusively in operations where the plane would serve as a feeder for its longer haul passenger business.

Airmail Pickup Explored

Airmail pickup operations were also explored fully and based on the experience of All American Aviation Inc. The Board may feel this is the proper way to extend air mail service to the smaller communities of the United States. Great improvement in pickup devices suggests that express and cargo operations will receive considerable more attention in future operations of this character.

Some additional evidence, particularly in the form of surveys which were in progress at the time the hearings were held, is still to be presented. All of this material was to be in the hands of the examiners by Nov. 15.

Panair do Brasil Stock Sale

Panair do Brasil, subsidiary of Pan American Airways, plans to put on sale approximately \$1,600,000 of stock, increasing the company's capital to about \$4,000,000. Up to 40% of the new stock would be sold to native Brazilians, the company plans. The stock will not be transferable to foreigners or citizens born outside the Federal territory.

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TWO BLADES ★ THREE BLADES ★ FOUR BLADES ★ SIX BLADES (CONTRA-ROTATING)

CONSTANT SPEED ★ VARIABLE PITCH ★ FEATHERING ★

ROTOL AIRSCREWS LIMITED, ENGLAND.

Parent Companies: ROLLS-ROYCE LIMITED,
& THE BRISTOL AEROPLANE CO. LIMITED

Canadian Representatives: BRITISH
AEROPLANE ENGINES LTD MONTREAL

CAB Calendar

- NOV. 16**—Pre-hearing conference on all applications for certificates involving new air service between the U. S. & points in Mexico, South America & the Caribbean area.
- NOV. 17**—Argument in Pan American rate case involving service to Alaska (Docket 458).
- NOV. 18**—Hearing on Western's application for control of Inland. (Docket 1106).
- NOV. 26**—Oral argument in passenger fare investigation of Braniff, Delta & National Air Lines.
- JAN. 10**—Consolidated hearing on applications of Western, Continental, United & TWA involving service between Denver & Los Angeles (Docket 519 et al).

3,400 Instead of 284 Airline Stops Needed In U. S., Says Warner

Edward P. Warner, vice chairman of the Civil Aeronautics Board, last month gave the Institute of the Aeronautical Sciences in Washington a long range view of the requirements of a local air transport system.

"The problem of scope is fundamental," Warner said. "The amount of special development work that the industry can devote to specialized equipment will obviously depend upon whether there is a reasonable prospect of selling a hundred of the specially developed aircraft, or a thousand or ten thousand," he added.

Warner analyzed a few of the particular concepts of some of the popular classifications of air transport service. He said a true feeder service would be one that radiated out from a major airline terminal to points within 30 or 40 miles distance.

"As the distance gets beyond that general range, local traffic between the local points and the metropolis becomes increasingly important, and finally predominant, with the feeding role receding correspondingly."

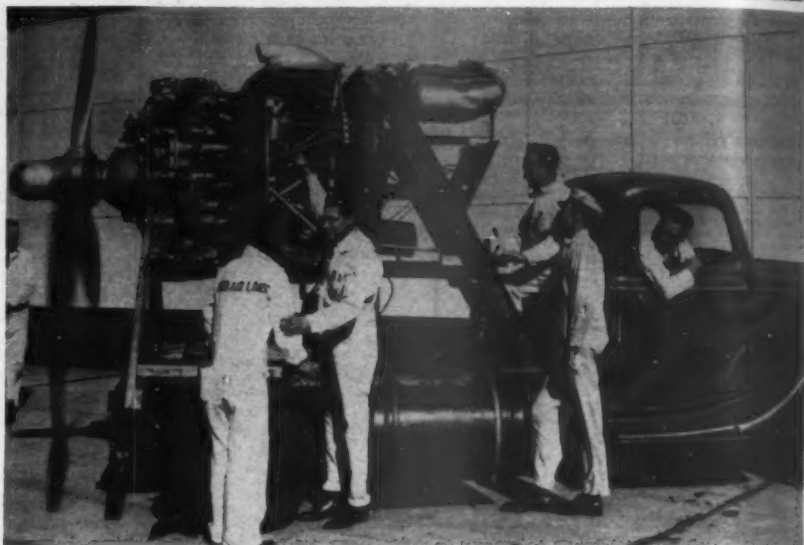
Asserting that the short-haul passenger is important and will remain so, Warner told his audience that the proportion of truly local traffic will vary in accordance with local conditions, centering about such factors as the accessibility of the airport, the frequency of schedules and the relation of these schedules to other transport schedules at points of exchange.

Warner contended that large increases in feeder service before the war would have been practicable only through mail payments averaging well over 30 cents a mile—the equivalent of approximately \$400 per year for every mile of route served with two round trip schedules a day, or from \$50,000 to \$100,000 per year for every 10-passenger airplane kept in active use.

"The market was not ready to absorb the product, except through governmental forcing," Warner explained, adding that the postwar period will obviously see a great change in this respect.

"The prospective economy of operation

Introducing United's 'Prairie Queen'



This one-and-a-half ton truck, with a Pratt and Whitney 'C' series engine mounted on it, has been dubbed 'Prairie Queen' by students at United Air Lines' Chicago school for mechanics' helpers. Pete Berger, supervisor of the school, is shown making an adjustment on the 'plane.'

of local lines will be largely dependent on the prospective volume of service. The value of short-range air transportation as a public service, and the confidence with which the ordinary citizen can look to it to solve his problems of personal mobility, will in turn depend upon the extent of the transportation system that it proves economically possible to maintain—upon the closeness of the meshing of the ultimate air transport network, and upon the frequency with which its various sectors are spanned by scheduled movements," the CAB official asserted.

In discussing a hypothetical project of an air transport system, Warner said that 64% of the people of the United States now live within about one hour's highway travel distance of some of the points now certificated to receive air transportation but that the number of stops on air transport routes would have to be increased from the present 284 to about 1600 to increase the proportion of the population so directly reached to 55% of the total.

He stated that the trend of prewar experience had shown that the degree of public acceptance of air transportation was not then great enough to support more than a few local services, operating under the best possible conditions and any material increase at that time would have required very heavy outlays by the Government in mail pay to the local lines. However he expressed the belief that the popularity of air transportation would be so increased as to make it possible to run a considerable number of such services within a short time after the war.

Warner sketched what he would consider as representing a really complete coverage of the United States by air transportation facilities, not prophesying its attainment as of any definite period but presenting it as a reasonable goal to be kept in view. It would entail, he said, an increase in the number of airline

PCA Granted Mail on Baltimore Line

Pennsylvania-Central Airlines Corp. has been granted permission by the Civil Aeronautics Board to carry mail on its service to Baltimore. The Board's order amends the carrier's certificate in such a way that Baltimore now becomes an intermediate stop on Route 14 between Norfolk and Detroit.

A new certificate, listing Norfolk and Detroit as terminal points and Baltimore, Pittsburgh, Akron and Cleveland as intermediate points has been issued the carrier.

PCA operated between Pittsburgh and Baltimore over an unnumbered route covered by a "grandfather" certificate issued April 21, 1939 which authorized the transportation of persons and property, other than mail.

In approving PCA's application, the Board noted the heavy air mail generated at Baltimore and called attention to the affinity of interest which the city has with other cities on PCA's route. The Board estimated that a saving of 30 miles in air transportation would be afforded points in the west and northwest through the inauguration of this service. The Board also stated that air mail service to many other points would be generally improved.

steps from the present 284 to about 3,400; the increase in the air route mileage within the United States to about 200,000 and the flying of about 750 million airplane miles each year or substantially more than the present annual passenger train mileage of the railways of the United States. He emphasized that there could be no certainty regarding the rate or the extent of progress in these matters.



For extraordinary achievement one of America's hero pilots is awarded the Distinguished Flying Cross. While patrolling over the Bay of Tunis, his flight of four Spitfires was attacked by 16 enemy aircraft. Displaying outstanding combat efficiency, this pilot shot down one Me 109, damaged several FW 190's, and played a major part in dispersing the rest of the formation.

That same afternoon, over Tunis, this same hero pilot observed 10 enemy aircraft preparing to attack a smaller number of friendly aircraft. Without hesitation, he dove on the enemy fighters, shot down one FW 190, dispersed the entire enemy formation, and saved our planes from attack.

In many other combats, he has distinguished himself as a superior fighter pilot and has brought great credit upon himself and the Armed Forces of the United States.

Condensed from official citation

SHOULDN'T A MEDAL BE PINNED ON ME?

With the latter citation, this pilot received one of the most unusual doubles of the war... his second Distinguished Flying Cross in one day.

What I want to tell you is that he is a graduate of THUNDERBIRD FIELD here in Arizona. We've been turning out boys like him since *long before* Pearl Harbor.

We have an Army Air Forces-Civilian team that's hard to beat.

For example, here's our Overhaul Depot. I wish you could see inside. There are hundreds of patriotic men and women... civilians... working in there unseen, unmedaled. Yet day after day, year in... year out, they have been delivering safe equipment to our flight line.

Without interruption they are keeping us PT-17 Trainers in perfect order so that more and more cadets

can safely train in us, then go on to *extraordinary achievement.*

As I stand here... stripped and waiting for my turn in "overhaul," I seem to be SYMBOLIC of their successful effort. Therefore, SHOULDN'T A MEDAL BE PINNED ON ME?



SOUTHWEST AIRWAYS

Phoenix, Arizona

THUNDERBIRD FIELD · FALCON FIELD · SKY HARBOR · THUNDERBIRD II
TRAINING THE FINEST FIGHTERS TODAY, THE FINEST FLYERS TOMORROW
CONTRACTORS TO THE UNITED STATES GOVERNMENT - UNITED STATES ARMY - UNITED KINGDOM GOVERNMENT - AIR TRANSPORT COMMAND

Three PAA Engineers Support Triangular Airport Pattern

RUNWAY LENGTHS AND PATTERNS of future airports should bear a rational relationship to aircraft operating requirements, just as do load factors in airplane design, in the opinion of John C. Leslie, Harold E. Gray, and John J. Ford of Pan American Airways. The three engineers all of whom are associated with PAA's Atlantic Division, collaborated on a paper entitled "Effect of Aircraft Operating Characteristics on Airport Runway Patterns", which Leslie delivered at the recent convention of the Institute of the Aeronautical Sciences in Washington, D.C.

"The runway length required by large aircraft has steadily increased throughout the years, due both to the performance characteristics of the aircraft themselves, and to the imposition of safety margins in the event of engine failure during takeoff," says the paper. "As a result, it has become increasingly costly and difficult to provide the total ground acreage required, and the cost of paving, lighting, and maintaining these long runways has reached major proportions. As a matter of common sense economy, therefore, runway lengths and patterns should bear a rational relationship to aircraft operating requirements."

The authors presented the following conclusion in support of the triangular, or 60-degree, airport pattern:

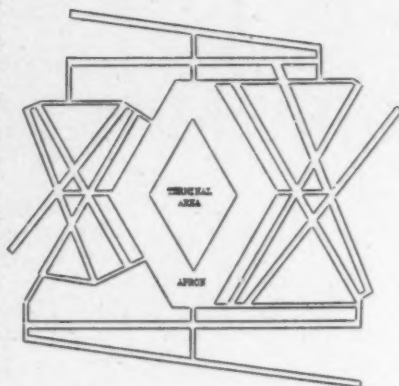
"Assuming equal distribution of wind directions, the usability of the triangular runway pattern, with a maximum allowable beam component of only 20 mph, would be 99.9%. Since prevailing opinion is that future large, multi-engined aircraft, using tricycle landing gears, will be able to accept a beam component of at least 20 mph, it would seem clear that the triangular system would be acceptable; correspondingly, it would not seem logical to spend a million dollars or more for the additional runway required by the quadrilateral (45 degree) pattern."

The authors pointed out that a new problem confronts the airport designer, who assumes one runway is sufficient in each chosen direction, when he finds that one runway will be insufficient to cope with the anticipated volume of aircraft movements.

"Airports already exist where traffic volume has required the installation of dual runways in each direction," the paper continues. "Estimates of traffic potentials for some of our larger cities indicate that transport aircraft arrivals and departures during a peak hour will be so heavy as to demand three landings and three takeoffs simultaneously. Such intensity of movement would constitute a maximum for a single airport, but is nevertheless a highly probable and reasonably obtainable objective. For such intensity of traffic, the obvious solution is the 'tangential' runway pattern."

If the air traffic volume requires more than one runway in a given direction, present practice is to add a second runway parallel to it, at least 750 feet away, the authors observe.

"Opinion is not uniform as to the manner in which these two parallel runways



Triangular runway system for quadruple operation.

can or should be used, but there seems little question that they can be used for one landing and one takeoff almost simultaneously," they say. "Judged by military standards, they can be used for two takeoffs simultaneously, although this is not viewed as good civil transport practice. "Because of air traffic problems during

Seeks Canadian Helicopter Route

Dominion Air Transit Co. has applied to the Canadian department of transport for a permit to start an air service with eight-passenger helicopters over a 2,000-mile return air route through the Ottawa valley, Montreal district, and the Quebec eastern townships.

the approach, it would seem that they should not be used for two landings simultaneously, and it is doubtful that by the expedient of dual runways the interval between two landing aircraft can be very much shortened as compared with the same two aircraft landing on the same runway."

In short, the authors feel that two parallel runways this distance apart can be used for a landing and a takeoff almost simultaneously, but preferably not otherwise. They point out that the parallel runway system, and any development of it except the "tangential," requires landing aircraft to taxi across the runway used by departing aircraft, or vice versa.

Outside of the possible hazard involved, they add, the inevitable consequence is some lengthening of the intervals between movements, which means some reduction in airport capacity. The authors see no complete solution for this in any known multiple runway system, except the "tangential."

(Editor's Note: See other airport plans as carried in AMERICAN AVIATION, issues of August 15 and September 15.)

Mayor LaGuardia, Seven Airlines Tangle on Idlewild Gas Concession

MAYOR LaGUARDIA and the seven airlines serving New York came to a parting of the ways last fortnight over the city's proposal to award a gasoline and oil concession at Idlewild Airport, now under construction.

In a letter to the mayor, officials of the airlines warned that if the concession is granted it will be "a major obstacle in arriving at acceptable terms with the city for the use of Idlewild Airport, and we may be required to re-examine our entire future service pattern for this area." The letter was made public at a Board of Estimate meeting by Ralph S. Damon, vice president and general manager of American Airlines.

It is understood that Mayor LaGuardia in replying, branded the letter as a publicity stunt. Another Board of Estimate meeting was scheduled for Nov. 18.

Gulf Oil Corp. was one of the bidders for the concession, offering the city \$3,750,000 plus 1½¢ on each gallon sold. Texas Co., Shell Oil, Colonial Beacon Oil Co. and Socony-Vacuum were joint bidders on the same terms, and were understood to have told the city that they did not care what company received the contract provided any oil company could participate in sales at the airport upon payment of a share of the \$3,750,000.

The letter to the mayor, made public at the Oct. 28 meeting, was signed by American Airlines, United, TWA, Eastern, Colo-


nial, Pan American and American Export.

"It is our understanding that the Board of Estimate on Oct. 28 may consider certain proposals relative to gasoline concessions at Idlewild Airport," the letter said. "We wish to voice our unanimous objection to the acceptance by the city at this time of any proposals having to do with the granting of gasoline concessions at Idlewild Airport."

"We are convinced that any consideration of this matter now is premature, and it is our suggestion, before steps are taken along these or similar lines, that the city work out its entire Idlewild Airport revenue-producing picture. Revenue from gasoline concessions for airline use is not a proper or equitable source of general revenue for the airport operation."

"In the event the award is made as proposed, we feel it incumbent upon us to inform you at this time that we consider this a major obstacle in arriving at acceptable terms with the city for the use of Idlewild Airport, and we may be required to re-examine our entire future service pattern for this area. As the chief prospective tenants of the new airport, we offer our assistance in meeting with you and your associates in working out an overall plan."

Damon asserted at the meeting that British Overseas Airways Corp. and Trans-Canada Air Lines "have assured me that their position is identical."



Corsair **SPEED**

For forty years, designers of
military aircraft have sought
to endow our fighting airmen
with higher and higher speeds.

Today the Corsair pilot, with his
2,000 horsepower, commands
a blazing speed unmatched
in naval fighting aircraft.

CHANCE VOUGHT AIRCRAFT

STRATFORD, CONNECTICUT

ONE OF THE FOUR DIVISIONS OF UNITED AIRCRAFT CORPORATION

Don't Push Passengers Around, Traffic Personnel Chief Warns

THE WAR SHOULD NOT be used as an alibi for pushing passengers around, airline traffic personnel have been warned.

Charles E. Beard, vice president-traffic of Braniff Airways, and R. L. Heininger, general traffic manager of Chicago & Southern Air Lines—both traffic experts who have seen the industry built up on its high standard of service—recently warned that this great asset must not be destroyed during the war.

"In my travels recently," said Beard in a memorandum to Braniff traffic managers, "I have been increasingly alarmed by the tendency on the part of reservations and ticketing personnel both in city and in field offices to consider lightly the inability of a prospective passenger to obtain space and, in a large number of instances, I have actually either witnessed or been party to a transaction in which the reservation or ticket clerk involved took the position that it was foolish to even expect to be able to get space without a high-ranking priority. I have witnessed clerks apparently getting some sort of sardonic satisfaction out of informing a prospective passenger that it was foolish if not idiotic to expect to get space in less than two or three or four weeks.

"This is alarming to me because it does not reflect the spirit of personal service which is largely responsible for the splendid reputation which has been built up by our industry as a whole. I am not in a position to determine whether or not our personnel are taking a similar attitude (Beard has asserted that his remarks were not meant to be critical of other operators "and I did not mean to infer that the same thing may not be occurring on our own line") but I want to counsel you that your most important job is to maintain the quality of service which we are rendering to all persons who try to use our service. This is best exemplified by a genuine interest in helping the passenger.

"I have frequently heard it said that we no longer have a sales problem because we are getting more demand than we can take care of anyway. That represents an unthinking viewpoint. There has merely been a change in the nature of our sales problem. Our problem now centers itself upon extraordinary effort to accommodate our passengers, thoughtful consideration of the assistance we can give when we are unable to accommodate a prospective passenger on our line, a maintenance of the solicitous attitude which built our business and our reputation, and avoidance of the careless flip or indifferent attention to our passengers.

"It is needlessly discouraging and serves no purpose to inform a passenger that it is futile to attempt to get space for the next two or three weeks or any other protracted period of time. On the contrary, we should advise the passenger that we will make every effort to get the space he requests and, failing in that, we will make every humanly possible effort to provide some suitable substitute in the way of space on another trip of our line or on another airline.

"Instead of concentrating on telling our passengers how full our airplanes are

running, we should concentrate on pointing out to them the space which is available on particular flights. Instead of disconsolately concurring with the opinion of a passenger that it is fruitless to attempt to fly without a priority, we should concentrate on pointing out that every mile a passenger flies will undoubtedly speed his arrival at his destination, even though he cannot make the entire trip by air.

"These are but a few of the examples of considerate and effective saleswork which we should and must carry on. It is the responsibility of every acting district traffic manager to see that we continue without abatement the high quality of (Braniff) service to the traveling public which is more Braniff-conscious than ever before in our history. I believe that the acting management of our various

(Turn to page 76)

Northwest Airlines Puts Lincoln in Research Job

James S. Lincoln, for many years associated with development of aviation in



Lincoln

the northwest as secretary of the aviation committee of the Minneapolis Civic and Commerce Association, has been appointed to a research position with Northwest Airlines. He is vice chairman and a director of the American Industrial Development Council, a

national organization of industrial bureau executives, and formerly was secretary of the Minneapolis Industrial Committee. Lincoln served overseas during World War I as an officer in the Air Corps, and is a major in the Air Corps reserves.

Railroad Control of Northeast Airlines Denied at CAB Hearing

ALTHOUGH TWO RAILROADS today own the largest block of the carrier's stock, Samuel J. Solomon, president of Northeast Airlines Inc. made it clear to CAB officials last week that he is running the airline and that these surface companies have relinquished all operating control and are supporting wholeheartedly the carrier's expansion program.

Solomon gave his testimony before CAB Examiner Thomas L. Wrenn at the hearing of the New York-Boston cases. Several weeks ago Northeast had appeared at the hearing in New York to put in its evidence in support of its applications for new routes in the New England area. Testimony on the question of whether Northeast is still controlled by the railroads was reserved for a later date to enable the carrier to prepare its case.

Under date of Aug. 28, CAB held that the airline was under the control of the railroads. At that time the railroads owned 40% of the carrier's stock. Subsequently the Central Vermont railroad sold its holdings which reduced the total stock held by the Boston and Maine and the Maine Central railroads to 30%. Northeast again asked the Board to find that the railroads no longer held control. The Board denied the petition and held that the carrier was still under the control of the railroads.

In a further attempt to satisfy the Board, both Solomon and L. F. Whittemore, vice president and a member of the Board of Directors of the airline, testified last week that the railroads had agreed to sell another 100,000 of their 150,000 shares of stock which would reduce their holdings from 30 to 10%. Whittemore, who is assistant to the president of both railroads, testified that if this stock could not be sold at a reasonable price to a buyer or buyers who would have the best interests of the airline in mind, prior

to Dec. 31, the railroads would accept non-voting stock in its stead.

Solomon furnished Examiner Wrenn with detailed information regarding recent actions of his Board of Directors and stockholders with reference to the carrier's proposed expansion program. The votes on all issues were practically unanimous, Solomon testified.

Asked by Public Counsel Henry Hill what might be the outcome of a policy and proxy fight should such a contingency arise, Solomon answered: "I have no doubt as to the outcome of any proxy fight if the decision involved is for the best interests of the airline versus any other interest."

The testimony showed that the next big block of shares is owned by Solomon, Eugene L. Vidal and Paul F. Collins. Their total holdings amount to 71,000 shares. Another block of 40,000 shares is held by a firm of underwriters in the name of The Atlas Corporation. The rest of the stock is distributed among nearly 1,000 individuals, 700 of whom own less than 100 shares each. There are 24 stockholders who own 1,000 shares each or more.

Public Counsel Hill, at the close of the hearing expressed the opinion that the control question could not be settled until the stock transfer had definitely taken place and that consideration of Northeast's application for routes in the New York-Boston area was therefore definitely affected. J. Raymond Hoover, attorney for Northeast, took the opposite view. He contended that the carrier had definitely shown, through exhibits and testimony, that it was not under control of the railroads.

Briefs and exhibits are to be submitted by Nov. 19 in the hope that the Board will be able to decide the important Boston-New York cases by the new year.

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Photos courtesy Consolidated Vultee Corp.



Complicated wiring harnesses are assembled in a Consolidated Vultee plant.

Belden wire is used in Consolidated Vultee planes.



Maker of Air History- The Consolidated Vultee "Vengeance"

ANOTHER PLACE WHERE BELDEN WIRE GOES TO WAR

This highly developed weapon—artillery with wings—is performing its specialized work on many fronts.

Here's another example of the way American ingenuity is defeating dictatorship. Here skilled workers are using service-tested materials in producing weapons that "stay on the job." Here's another place where Belden wire goes to war.

Back of Belden aircraft wire is a lifetime of experimenting and testing and collaboration with aircraft engineers since flying was in its infancy. This vast experience makes possible the Belden aircraft wire that meets today's needs.

Belden Manufacturing Company, 4691 W. Van Buren St.
Chicago 44, Illinois

Awarded the U. S. Treasury
Special Citation of Merit for



Initiating the War Bond-
or-Cash Dividend Plan.

Belden Aircraft WIRE

Starter, Lighting, and Instrument Cables ∨ ∨ ∨ SPARK PLUG WIRES

CAB Orders Affecting Air Carriers

Oct. 20 to Nov. 5

Order No. 2480: Severed a section of the application of American Airlines, Inc. in Docket No. 932 entitled "VI New Route A" and assigned it Docket No. 1119; consolidated Dockets Nos. 1119, 303, 460, 427, 429 and 591 with Dockets No. 988 and 1080, in the matter of the applications of Mid-Continental Airlines, Inc. and United Air Lines Transport Corporation for certificates authorizing air transportation between certain points; assigned proceeding for public hearing; denied request of Eastern Air Lines, Inc. to consolidate and amend Dockets 1067 and 491; denied request of Pennsylvania-Central Airlines Corp. that its proposed non-stop operation between Detroit, Mich. and Chicago, Ill., on Route No. 32, be consolidated.

Order No. 2481: Granted permission to Braniff Airways, Inc. to intervene in the matter of the applications of certain airlines for certificates and amendments of existing certificates.

Order No. 2486: Permitted Delta Air Corp. to inaugurate air service Nov. 15 to Alexandria, La., through use of Army Air base.

Order No. 2487: Permitted Delta Air Corp. to inaugurate service at Baton Rouge, La., Nov. 1 through use of Harding Field.

Order No. 2489: Granted American Export Airlines, Inc., permission to inaugurate service Oct. 25 at Bathurst, Gambia, Port of Spain, Trinidad and Hamilton, Bermuda.

Order No. 2491, Dockets Nos. 398, 599: Amended certificate of Pennsylvania-Central Airlines Corp. to include mail in its service to Baltimore and includes this stop in carrier's certificate for Route 14 between terminal points Norfolk and Detroit. Order No. 2492, Dockets 778 et al: Extended temporary foreign air carrier permits to Nov. 10, 1943 involving Royal Dutch Air Lines, Compania Nacional Cubana de Aviacion, TACA and British West Indian Airways.

Mexican Airlines Listed

The latest list of airlines in Mexico released under date of September by the Department of Civil Aeronautics, Mexico City, reveals that there are now 27 certificated airlines operating in that country of which three are U. S. international companies. The number of small airlines (usually with small airplanes) has increased substantially. Total kilometers being flown by certificated airlines is 42,667, or about 26,667 miles—a considerably higher total than in the United States. (One mile equals approximately 1.6 kilometers) Less frequent schedules, small seat capacities, etc., however, must be taken into consideration when comparing Mexican airlines with scheduled services of other countries.

Largest system is that of Compania Mexicana de Aviacion, S. A., subsidiary of Pan American Airways, with 10,399 kilometers of routes. Second is Aeronaves de Mexico, 3,884 km., in which PAA has an interest. PAA's international system through Mexico comprises 3,627 km., which gives the total direct and indirect PAA enterprise a total of 17,910 km., not quite half of all Mexican route mileage.

The complete list with kilometers follows:

Compania Mexicana de Aviacion, S. A. (PAA subsid.)	10,399
Pan American Airways Inc. (Internacional)	3,627
Aeronaves de Mexico, S. A.	3,884
Lineas Aereas Mineras, S. A. (United Air Lines)	3,621
Transportes Aereos Mexicanos, S. A.	2,821
Servicio Aereo Panini	2,769
American Airlines Inc. (Internacional)	2,519
Compania Aeronautica del Sur, S. A.	2,489
Braniff Airways (Internacional—Air Transport Command)	1,422
Jose Navarro Elizondo	1,329
Comunicaciones Aereas de Veracruz	818
Compania Constructora Azteca, S. A.	777
P. A. Jesus Valezi Esparza	639
Antonio del Rio	628
Transportes Aereos del Pacifico, S. A.	577
Lineas Aereas Jesus Sarabia	566
Cooperativa "Los Chenes"	536
P. A. Leopoldo Lopez T.	462
Antonio Gutierrez Sanchez	439
Ricardo Nevarez	439
Transportes Aereos de Jalisco ..	427
Nicolas Gonzalez	421
San Luis Mining Co.	302
Empresa Aerochicleria	281
Guillermo L. Taboada	195
Transportes Aereos de Tampico..	168
Pedro Silveira, Juan Herrera y ..	112
Miguel Medina A.	112
Total Kilometers	42,667

Shippers Urged to Make Air Express Available For Daytime Forwarding

Airlines could handle more air express tonnage if shipments were made available for forwarding throughout the day instead of being held for night schedules, in the opinion of M. D. Miller, manager of the airmail and express department of American Airlines.

Speaking in Boston at the first of a series of nationwide meetings being held in the interests of air express service, Miller predicted that postwar air express rates will be lower, but not equal to or lower than less-than-carload rail freight rates.

New Brazil Route

A new one-day direct air service between Rio de Janeiro and Belem, at the mouth of the Amazon, has been inaugurated by Panair do Brasil, the Brazilian affiliate of Pan American Airways. The new service, to be operated weekly in each direction, will supplement both Pan American's three-times-a-week "cut off" service between these two cities, and Panair do Brasil's coastal route around the Brazilian "hump", and represents a saving of a day in travel time compared to the latter.

Don't Push

(Continued from page 74)

traffic offices is in the hands of people entirely capable of intelligently managing them and intelligently avoiding in their respective offices some of the practices I have related above. I feel confident that as a group we are not going to let the company down."

Heininger told the story of a veteran air traveler who had been the principal speaker at a meeting of the Los Angeles Sales Managers' Association "and used as his subject the lack of courtesy and tact in handling of one of his urgent flights. He used the airlines as an example of shortsightedness of people who are enjoying capacity war business. This executive claims that he was told by a city traffic manager of an airline that he was too busy to handle problems involving the individual attention of passengers and assigned such duties to his secretary.

"Such treatment," Heininger continued, "is the reason why he has denounced the airlines publicly.

"My first reaction to the above comments might be: this may happen on other airlines but it can't happen with Chicago & Southern. Frankly, we don't believe our people as a group make it a point of being discourteous. We have, however, received comments from a few passengers which, when considered from the foregoing viewpoint, give us cause to feel rather uneasy.

"Not so long ago a letter was received from a young lady in Jackson. We quote her letter:

"I did not appreciate the attitude and the remarks of the Chicago & Southern people when I asked why I was made war cargo between two cities. Some little girl in a Chicago & Southern uniform had a lot to say about 'there's a wah going on.'"

"I am afraid this trip has convinced me that airplanes are not my meat for awhile. I have been a big builder-upper for planes, and especially Chicago & Southern for a number of years. The main reason I liked them above all other modes of transportation was because of courtesy, but I think that reason has apparently gone with the war."

"None of the airlines will deny that the ogre of discourtesy to passengers is rearing its ugly head and it is a problem which keeps many traffic heads awake at night. Air transportation has become popular because an integral quality of the service was courtesy to passengers; and this company is not going to allow an alibi like the 'wah' to jeopardize the goodwill that we have worked so hard to create.

"We find ourselves in the midst of a complexity of problems and must combat three influences imposed upon us by the war: First, heavier traffic vs. less equipment; second, priorities; and third, new personnel.

"We are not going to permit present difficulties to 'foul our nest' and tear down the one great asset which has made our company a part of the most phenomenal industrial success this country has ever seen. We are not going to use the war as an alibi to push passengers around."



Metallurgical Help for "The Little Man Who Isn't There"

The gyro-pilot is aptly nicknamed the "Little Man Who Isn't There." The device provides marvelous relief for pilots on distance flights, keeping the plane on its course with uncanny accuracy, despite wind and weather.

Developing the newest and most efficient gyro-pilot posed some pretty problems for the maker, including a design that called for unusual rotor rings. They required a metal with the greatest weight that could be contained in the smallest possible area.

Having worked with Mallory on other applications, the manufacturer asked Mallory to find the metal—and without delay.

A Mallory material — Mallory 1000 — was suggested. It is a material of high specific density and provides maximum mass weight in minimum space. It filled the bill exactly.

Here again was proof that metallurgical progress grows from meeting the service needs of many industries. Mallory 1000 was developed originally to shield the gamma radiation in radium beam therapy. Now its applications extend not only to gyro-pilots but to fly wheels and counterweights in aircraft where space is at a premium.

Where product plans call for experience and "know-how" with contact designs and materials, Mallory engineers and metallurgists may give real help. Bring your problems to them.

P. R. MALLORY & CO., Inc., INDIANAPOLIS, INDIANA

Cable Address—PELMALLO



While the design is still in blueprint form

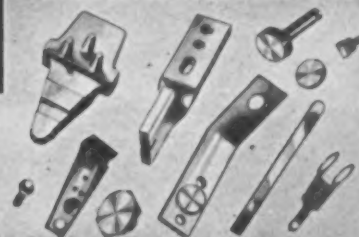


CONSULT MALLORY
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P. R. MALLORY & CO. Inc.
MALLORY

**ELECTRICAL CONTACTS AND
CONTACT ASSEMBLIES
NON FERROUS ALLOYS
POWDERED METAL ALLOYS**



Airline Personnel



Reiter

Goodrich



Fullerton



Dayhoff



Irving Monroe



Calhoun

A women's counselor service has been established by United Air Lines with Mrs. Clara Parker in charge of the eastern division with headquarters in Chicago, and Mildred Howard in charge of the western division at San Francisco.

Three Northwest Airlines promotions were announced last fortnight as follows: John T. Griffin was named operations manager for both the Atlantic and commercial divisions; Howard D. Ingalls was appointed vice president in charge of engineering and maintenance; John A. Reece was named director of Northeast's pilot training division at Burlington, Vt.

Pennsylvania-Central Airlines has named Casey M. Britt, former chief of placement for the Office of Defense Transportation in Washington, as DTM in Grand Rapids, Mich.

C. H. "Cal" Calhoun has assumed the position of superintendent of maintenance for Mid-Continent Airlines. He was formerly with TWA at Kansas City.

Irving K. Monroe, United Air Lines office manager in Los Angeles, has been granted a leave of absence to enter the Navy. Just 21 years old, he was the youngest office manager in the UAL system.

United Air Lines appointments: T. C. Dougan is the new assistant general purchasing agent at Chicago, succeeding James Aldrich, now in leave as an ensign in the Navy; Clarence H. Bennett, formerly with UAL's air cargo department in Portland, Ore., is now Oakland, Cal., area manager; Glenn W. Evers, formerly with the Firestone Tire & Rubber Co. in Dubuque, Ia., is area manager for Northern Chicago; Burton C. Koenitzer,



McDonald



Johnson



Koenitzer



Bennett



Evers



Dougan



Jones

Marechal



Parker



Howard



Smiley



Bartles

formerly Firestone employe in Milwaukee, is area manager at Philadelphia.

Continental Air Lines has named Mildred "Tommy" Heck chief hostess. She is the oldest hostess in point of service, having been a member of the airline's first hostess class which began training Nov. 17, 1941.

Transcontinental and Western Air, Inc. announces the following appointments in district traffic managers: A. D. "Doc" Williams, New York; F. G. Reiter, Philadelphia; Howard Goodrich, Jr., Indianapolis; Ralph L. Butcher, Jr., Los Angeles; L. A. McDonald, Dayton; Joseph F. O'Keefe, Wichita, Kan. The airline has named J. Reay Jones assistant to V. P. Conroy, vice president-traffic; Clyde S. Fullerton, sales manager; Louis P. Marechal, director of traffic training; Vernon L. Gunn, assistant to the Central regional manager, Chicago; Ed B. Johnson, assistant to the regional manager at Kansas City; Clancy W. Dayhoff, assistant to the Western regional manager, Los Angeles; Robert B. Riordan, supervisor of the traffic training staff, Kansas City; Norvel Waldron, assistant to the traffic training director at Kansas City; Frank P. McGough, reservations supervisor, Kansas City; Parks E. Gilmore, reservations manager, Chicago; Dale Y. Ecton, manager of the guide department, Kansas City; George Brown, Jr., market research project representative, Kansas City.

In the recent redesignation of TWA regions, Capt. J. S. Bartles became superintendent of the new Western division on the West Coast, and Walton H. Smiley was named chief pilot of TWA's Eastern division.



COTTON can be tougher than METAL

THE tail-control surfaces of a long-range Bomber—rudder and elevator—are cotton fabric, stretched over a metal frame. The part out there in the screaming wind has too tough a job for metal. Metal "flutters"—may deteriorate through "fatigue."

At the "University of Petroleum," Shell's research laboratories, they found how to get methyl ethyl ketone from a petroleum gas. Its high solvent power has a vital function in an airplane "dope" which tautens the fabric . . . smooths its "skin."

This same genius for doing the impossible resulted in Shell being the first to produce 100-octane fuel in commercial quantities . . . one of the reasons the majority of the country's leading plane and engine manufacturers prefer Shell Aviation Fuels. Shell Aviation Products are also preferred by many airlines, aviation training schools, and airports.

Farsighted airport operators will find Shell's wartime popularity a profitable peacetime asset.

**AVIATION FUELS
AEROSHELL OILS**



Arthur S. Halling

Aircraft Interior Decorating Analyzed

Foley Reviews General Designs, and Outlines Possible Future Interior Layouts; Diversification Seen

By E. J. FOLEY

THE TRANSPORT AIRCRAFT INTERIOR is a recognized influence in airline passenger traffic development even though no effective evaluation of its importance has ever been made. A review of certain general design considerations and an outline of possible future interior types may provoke thought on this important problem.

Past practice has produced interiors nearly standardized on one pattern exclusive only of decorative scheme. Even though it seems that this development results from the widespread use of a single aircraft model, the future need not follow this pattern. In fact, the trend is toward a diversification of several different types of interior. This trend may find expression in two or more distinctly different interior layouts applied to the same aircraft type.

One of the problems involved in interior design is the arrangement of seats across the cabin. The conventional 2-1 setup needs no comment. We have seen a 3-2 line applied wherein arm rests were provided between the three seats, but omitted and a double safety belt used on the 2 side. The latter practice makes for a definite chumminess and we presume great care must be taken in passenger seating on this side. It appears that such a design, if especially efficient structurally, might be improved by making the frame center-high and thus tending to separate the occupants.

Grouping of Seats Studied

The case of conversational groups in aircraft interiors, i. e., compartmental cabin or any other method of making seat rows face one another, has been tried on long-range aircraft, apparently with success. However, the possible reluctance of passengers to ride backward makes this a matter for study prior to widespread use.

Passenger convenience seems to dictate that seats should be arranged in lateral groupings of no more than two, if only one end of the group is on an aisle. Of course, the equivalent condition is achieved with three seats joined if there are two aisles adjoining. The above is also supported on the basis of best possible floor area utilization. With combinations of over two passengers, seat spacing and aisle width become extravagant.

The wartime acceptability of the sitting-sleeping condition will vanish with the peace. The berth arrangement, we

personally find most appealing, is that which when made up leaves two curtained seats for the convenience of both upper and lower berth occupants. Having to go to bed when the lower does, or the converse, never appealed to us.

Proposals have appeared from time to time which purport to provide several classes of accommodation in one cabin; e. g., one portion private cabins, berth-convertible seats, and fixed seats. This example is an improbable extreme used only for purposes of illustration. Our point is that even if such an arrangement is practical from all other considerations, it is totally unacceptable from a traffic or reservations standpoint. An attempt to make bedfellows of air transport speed and the reservation burden unavoidable when passengers are fighting for Parlor C, lower 9, and least likely seat 3 on the same airplane, is doomed to failure. The simple availability of uppers and lowers has been extremely expensive in the past. Therefore, uniformity of accommodations throughout the aircraft is most desirable.

Boudoir Colors

Decorative schemes, in a few instances, appear to have taken both their colors and their usefulness from the boudoir. If this appears to be a strong statement, it is not because we are opposed to either pastel or plush—in their proper place. Nor do we advocate just one color, or burlap only, for aircraft interiors. The desirable is simple, restive color schemes applied in the form of easy-to-clean, wear-resistant fabrics. The best possible utilization and the simplest maintenance of passenger eye-appeal demands this and nothing more or less.

The carpeting problem has rarely been satisfactorily solved. Most of us have seen or worn that literally electrified look when grasping the metal coat rack after scuffling along the aisle. The remedy for this appears available in the form of new materials immediately after the war. Another phase of this problem is the effective light-weight anchoring of the carpeting to the floor without requiring extreme delay for maintenance removal.

Ray Stough, head of CAB's Economic Bureau, was commenting to us the other day about a few little interior details that he favors. Seems he was penciling a few notes while enroute and, wanting to lay down his pencil, found that the window sill was most convenient but equally convex. We agreed that the level rippled sill seen in some airliners offers an advantage in this direction, although it may need a little more dusting than the other kind.

Another point Ray made favored the adjustable foot rest standard in some aircraft. There is a division of opinion on this point, we find, but it gives us an indication of the extent to which we

should carry our thinking on accommodations.

It is well to remind ourselves of the need to draw a line on accommodations lest, by lack of concern for weight, we find ourselves able to accommodate one passenger to the king's taste.

Looking to the future, we can visualize at least four types of aircraft interior layouts, all approximately paralleling surface transportation accommodations. The four types we shall mention are sky bus, sky coach, sky pullman, super luxury.

The sky bus layout is restricted to short haul, high frequency, commuter-type service. Comfort is limited. Seat design and spacing, aisle width, etc. are all geared to the service for which the craft is tailored. Of course there would be no convertibility of accommodations and the craft would be limited in its usefulness to that type of service for which it was designed.

The coach is approximated by the airliners of today. Added comfort to assure passenger acceptability over longer ranges is the major difference between this layout and the bus. There appears to be no reason why this interior is not adaptable to the same aircraft as the bus.

The "sky pullman" is a development of the sleeper type aircraft of the prewar period. This layout provides for long-range luxury operation; it offers convertibility from seats to berths. The "livability" of this type of accommodation would seem to make it a larger, longer-range craft than either of the other two. Certain evident improvements over the prewar "sleeper" will be incorporated.

Defines 'Super' Craft

The super luxury craft can be defined more precisely but it is the most remote of the several types and so, we do not elect to limit it at this time. In size, it might be the same as the Pullman or larger. Accommodations will vary from the immediately aforementioned type mainly in privacy. This privacy could take the form of roomettes, or even larger private quarters.

In anticipation, we shall merely mention that there will undoubtedly be a rate differential between these several types of accommodations. We leave any quantitative evaluation of these differentials to others more expert than we.

The above is a general, all-too-brief review of the aircraft interior as an element of air transportation. Space has left more unsaid than said. The spaces to be filled in may have to be left to you. We doubt that there will be a question as to the need for exploring this phase of our business. At your request, and with your help, there can be extensive development of this theme. Your cooperation will be welcome and most helpful to the entire industry.



Foley



Can this be so?

... no bigger than the hand that operates it ... harnesses the forces that open huge doors, acres in area and weighing as much as 300 tons.

Built into the door jamb, this little contrivance activates the mechanical brain which Byrne Engineers have created to move these mighty masses—swiftly, smoothly, safely. A flip of the switch does it ... and SAVES OPERATING MAN-POWER, today's critical scarcity.

Yes—and more!

Doors that open whole sides of quarter-mile hangars ... doors that guard the dirigibles nesting along our coasts ... doors that rise, that slide, that tilt ... doors that speed our bomber production ... and doors no bigger than a flivver plane or an army jeep ... all are the normal products of Byrne, an organization attune to the unusual demands of Aviation and Industry.

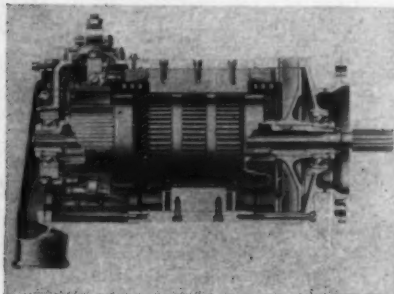
Two decades of progress and achievement have made Byrne Engineers the most widely consulted civilian authorities on hangar doors in the country. Planners are welcome to the assistance of Byrne.

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Equipment News

High Speed Generator

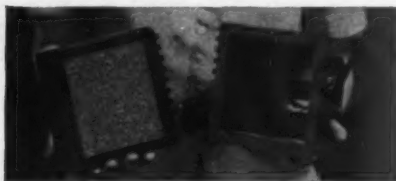
Weighing 36 pounds, the Eclipse P-2 High Speed Aviation Generator rated at 28.5 volts, 200 amperes at 5,000 to 10,000 rpm, has been designed by Eclipse Pio-



neer, Teterboro, N. J., for both auxiliary and main engine application. To provide satisfactory operation at low cruising speeds encountered in long-range operation, the 6 kw unit delivers three-quarters of its rated output at 4,400 rpm. Adequate cooling for either main engine or auxiliary installation is said to be provided by means of an integral cooling fan and an air spout for blast cooling, which permits circulation of air through the hollow armature shaft. The P-2 frame measures 12 5/32" from the alloy steel mounting flange to the back end and is 6" in diameter.

Skinner Air Scoop

Already standard equipment on many of the training planes being built for the Army Air Forces, a new Air Scoop is offered by Skinner Purifiers, Inc., 1500 Trombly Ave., Detroit. A basic feature in the scoop design is the location of the



butterfly valve, pivoted close to the center of the scoop housing instead of at the bottom as is commonly done. By pivoting the valve off-center slightly on the ram side, the valve remains closed under normal operation without ratchet or other devices. Removal of the air filter from the scoop requires no tools. Spot welded half hinges on scoop and filter cabinet and joined by wired-in pins; bent ends of the pins make hand removal easy. The total weight of the unit is 2.67 pounds.

Resistoflex Announces 'Compar'

"Compar", a newly discovered synthetic plastic derived from coal, limestone and air, has been developed by the Resistoflex Corp., Belleville, N. J. A "transparent, flexible, rubber-like plastic, five to 20 times more wear-resistant than natural

Flexible Fastener

The Packless Flexible Fastener, combines the functions of a supporting strap and a vibration absorber for tubing. It has been developed by Packless Metal Products Corp., New Rochelle, N. Y. It consists of a small sensitive spring, cone-coiled and terminating in a clip which snaps onto the tube to be fastened. The size is determined by the tube O. D. The fastener is fixed to the supporting



surface by means of a standard screw fitted thru the cone spring.

Cable Splicer

Known as the Universal 101, a new design cable splicer, built of wrought iron with manganese bronze fittings has been developed by The Mechanics Engineering Co., Jackson, Mich. No adapters are required to handle the several common sizes and types of thimbles and bushings, it is said; rather, holding is accomplished by a sprocket chain and jaws. Chain adjustment for size is ac-



complished by setting and locking a single button. The unit may be bench-bolted, vise-held or used by hand.

rubber" this plastic is used in aviation fuel and hydraulic hose, naval Diesel engines, chemical warfare equipment, Sperry Gyro-pilots, and countless other materials which are exposed to super-gasolines and irritating petroleum solvents.

Need Men Trained for LEADERSHIP in Aeronautical Engineering? — Look to Parks

Graduates of Parks Air College are now serving in these positions of leadership in the aviation industry:

Production Engineer • Research Engineer
Group Leader: Stress Analysis, Layout,
Weight Analysis • Test Pilot (with flight
training) • Project Engineer • Instructor
Administrative Engineer • Liaison Engineer

Aeronautical Engineering is only one of the four branches of aviation — Aviation Operations, Maintenance Engineering, and Professional Piloting — in which Parks graduates are prepared for positions of responsibility. For information as to available graduates for your own personnel requirements, write or wire Oliver L. Parks, President.

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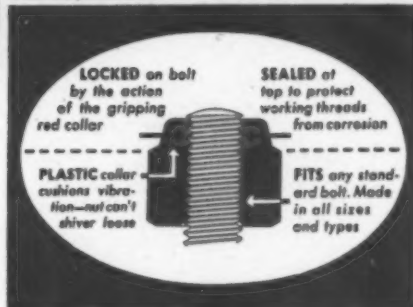


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O. D.
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1. One of the four Elastic Stop Nuts which fasten the 2000-horsepower engine onto the Republic P-47 Thunderbolt.
2. Four more Elastic Stop Nuts hold the fastenings of the wing. Two are shown here.



You've gotta hang on when you say "Giddap" to 2,000 horses



When the pilot of a Republic P-47 pours on the soup, 2,000 surging, throbbing horsepower yank him into the high blue heavens.

When he climbs straight up he is literally hanging on his prop and engine.

And those tons of plane, man and armament hold onto that engine with just four Elastic Stop Nuts.

This is the kind of job that has given Elastic Stop Nuts the reputation of having revolutionized modern aircraft construction. It's the reason you find over 12,000 of them on the P-47 and as many as 50,000 on some types of bombers.

It's all because these nuts hold fast — without auxiliary locking devices. They're applied like ordinary nuts. They can be removed and replaced time and again without losing locking effectiveness. They stay put, and nothing, even violent vibration, shakes them loose.

It's done by the red elastic collar in the top. This collar clings tightly around the bolt threads. It absorbs and cushions vibration from every direction. The nut can't shiver loose — can't turn.

Postwar progress will present countless fastening problems which these nuts will solve. Perhaps you already are studying such problems.

If so, let us know about them. Our engineers will be very glad to help work out a solution and show you how an Elastic Stop Nut will provide a safer, surer, trouble-free fastening.

ELASTIC STOP NUTS

Lock fast to make things last



BACK THE ATTACK . . . BUY WAR BONDS

ELASTIC STOP NUT CORPORATION OF AMERICA
UNION, NEW JERSEY AND LINCOLN, NEBRASKA



Photo by
Hugelmeyer
1st Air Force

Snub-nosed, lethal-appearing Republic Thunderbolts are proving the deadliest sky scrappers in action today. With their pulverizing 6,400 rounds-per-minute firepower and their 1,000-mile range, the P-47 fighters are punching down all opposition to help the United Nations gain absolute air mastery over the European invasion front. The 13,500 pounds overall weight of the Thunderbolt includes eight machine guns mounted in the wings, a 2,000-horsepower radial engine, and a turbo-supercharger. With a level flight speed exceeding 400 miles per hour, the P-47 Thunderbolt has dived at 780 m.p.h. Its ceiling of 40,000 feet makes it an effective protector of bomber armadas.

For fine achievement in War Production . . . the joint Army and Navy "E" was awarded to the men and women of Simonds Saw and Steel Co.



AIRCRAFT ARMOR PLATE

— by **SIMONDS** meets
Army and Navy
Specifications

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Address
Armor Plate Division

SIMONDS

SAW AND STEEL CO.
FITCHBURG, MASS.

DOWN THE Manufacturing LINE

After a month of experiment in discontinuing its third shift, Bell Aircraft Corp. is now analyzing production results at its Niagara Falls assembly plant. Previously all three shifts had been forced to operate short-handed, including shortage of supervision, and by transferring third shift workers to the other two shifts the plant was brought up nearer to shift capacity. West Coast manufacturers, getting ready for two 10-hour shifts, are interested in the organizational procedure.

Consolidated Vultee, which tags its Ft. Worth, Tex., plant with the familiar superlative "largest aircraft manufacturing plant in the world," now claims another superlative—the largest x-ray setup in the industry. It's used to eliminate duplicate drawings of plane parts . . . Howard Aircraft Corp., Chicago, is telling all employees who go into the armed services, that the latch string is out and they'll have jobs when they return. . . . Despite manpower shortage, Bell Aircraft's Frontier Division released 40 men for several days to help can tomatoes and other crops in nearby canneries to save them from spoiling . . . And checked it up to investment in good will.

Defense Plant Corp. is spending \$1,000,000 on a shopping center containing everything from a dime store to super markets and beauty parlors at Ford's Willow Run bomber plant, hoping it will alleviate the high labor turnover. . . . First plane turned out at the De Kalb, Ill., plant of Interstate Aircraft & Engineering Corp. was test flown early last month, with employees given an opportunity to see the flight.



. . . They make both hay and airplanes at Cessna Aircraft Co. in Wichita. . . . Neighboring farmers, after completing regular shifts at the factory, go out and harvest their hay at the edge of the Cessna airport (see cut). . . . Real labor coordination.

Douglas Aircraft Co. will train the Chinese workers who will man the all-Chinese plant of China Aircraft, Inc., in San Francisco, which will make A-20's. Training will be under George Strompl, manager of a Douglas foreign project, who will later direct organization of the new factory. . . . Names of five workers who helped build the craft are now stenciled on each troop carrying glider turned out at the General Aircraft Corp. Long Island plant . . . Names are drawn from a hat and go on the craft under the legend "For Meritorious Service in Building This Ship." The Company says it's a good morale builder.

Nash-Kelvinator Corp. announces that facilities are nearly ready for mass production of the Sikorsky helicopter for the U. S. Army in three of its plants . . . The newest torpedo plane, the Sea Wolf, recently announced by the Navy, is built from a design developed by Chance Vought Aircraft Division of the United Aircraft Corp.—the same engineering staff which developed the Vought F4U-1 Corsair . . . Murray Corp. of America now has most of the machinery installed in its new bomber wing plant in South Scranton, Pa. . . . Waste of rivets, which has come to be quite an item, has been eliminated at the Glenn L. Martin plant by packaging them in cellophane bags. Workers digging into bins of loose rivets caused most of the waste.

West Coast aircraft factories during the month of September produced 2,243 planes of different types—within a few planes of scheduled production, according to the AAF Western Procurement District. Materiel Command. This was an increase of 3.17% in weight over August, while employment declined 3.15%. . . . When the Navy advised Grumman Aircraft Engineering Corp. its new Helicat fighters had downed 51 Jap Zeros in its first two days of action, the company called out a brass band and employees staged a lunch-hour celebration. Officials said the news brought a spurt in production.

C. G.



All Macwhyte aircraft products are made to conform to A-N specifications...including:

"SAFE-LOCK" TERMINALS

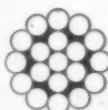
... in eye end, turnbuckle end, stud end, and fork end.

AIRCRAFT SLINGS

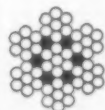
... custom-built for your work. Both standard wire rope and braided slings available.

TIE-RODS

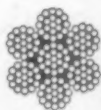
... for internal and external bracing. Streamline, square, round.



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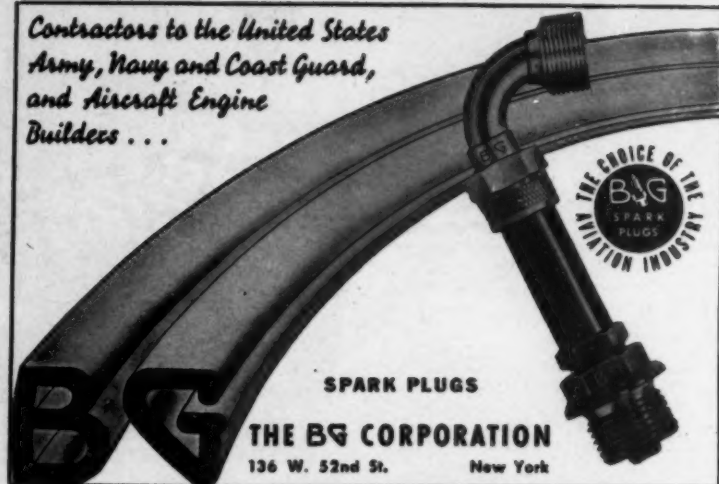
7 x 7



7 x 19



Contractors to the United States
Army, Navy and Coast Guard,
and Aircraft Engine
Builders . . .



Manufacturing Digest

CONSOLIDATED VULTEE AIRCRAFT CORP. announces that construction has started on a \$1,225,000 addition to an experimental building at its Fort Worth, Tex., plant. The structure is scheduled to be completed by next April. It will have doors 300 feet wide and 60 feet high at both its east and west ends, and will house not only experimental projects but airplane load test weighing scales as well. The latter will accommodate aircraft up to 150 tons, more than five times the size of the present Liberator.

HOOSIER AIRCRAFT CO., Inc., reports that its name has been changed to **BALLARD AIRCRAFT CO., Inc.** There is no change in the company's corporate interests or personnel.

UNITED STATES PLYWOOD CORP. announces it has purchased the building at 55-57 W. 44th St., New York City, formerly the City Club, for use as its executive offices.

AIRCRAFT ACCESSORIES CORP. reports that volume of sales during September was the largest for any month in the history of the company.

PRATT & WHITNEY'S Niles-Bement-Pond Division announces acquisition of the Chandler-Evans Corp., South Meriden, Conn., builders of a line of accessories used in airplane engines under the trade name "CECO." This deal makes available any surplus manufacturing facilities in the big West Hartford plant of the Pratt & Whitney division for overflow from Chandler-Evans, and will result in speeding up delivery to the Government of parts needed in the war program, says a P. & W. announcement.

HANDLEY-PAGE AIRCRAFT CO., manufacturers of Halifax bombers, reports that these planes are now being turned out in seven days instead of the 12 days previously required. The present bomber is a strengthened and improved version of the Halifax which first rolled off the assembly line during the days of the 1940 blitz, says a company announcement.

AIRCRAFT—MARINE PRODUCTS, Inc., announces that its office and plant will be moved from Elizabeth, N. J., to Harrisburg, Pa., by Dec. 1. The company manufactures electrical connectors for wiring ships, planes, and other electrical installations.

AMERICAN AVIATION CORP., Jamestown, N. Y., announces that four new buildings, included in its plant expansion program, will be completed by March 3. The company received a DPC award. Total cost of the program will be \$1,186,000.

PIPER AIRCRAFT CORP. announces that the Piper Teacher's Kit of Junior Aviation Instruction Material is being used by "thousands of instructors, supervisors, and superintendents of schools from coast-to-coast."

WORLD'S PREMIER AIRPLANE FABRIC

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ATLANTIC RAYON CORP. • **INDUSTRIAL FABRICS DIVISION**
350 Fifth Avenue New York 1, N. Y.

Leading Manufacturers of Fabric and Tapes for the Aircraft Industry.

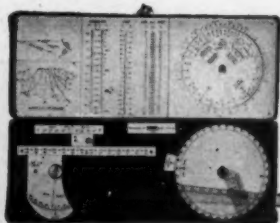
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Aircraft



Computers



NAVIGATIONAL COMPUTER

Enables a pilot or navigator of aircraft to quickly and accurately solve dead reckoning navigational problems without mental arithmetic. It determines the relation between Air Speed, Ground Speed, Wind Direction and Velocity, Heading, Track and Magnetic Variation. It also incorporates a circular time-speed-distance slide rule, conversion tables and variation chart.

COX AND STEVENS AIRCRAFT CORPORATION

P. O. Box 30

Mineola, N. Y.



Giant in a bottle!

COMPRESSED in a handy cylinder, ready to go to work at an instant's notice, lives a mighty giant—named Carbon Dioxide. A container only $3\frac{1}{16}$ by $9\frac{1}{8}$ inches holds 42,000 foot-pounds of energy—available at the turn of a valve!

Walter Kidde & Company has developed many interesting applications for this gas-under-pressure. In the aviation industry, it's serving as a source of emergency power when the hydraulic system is crippled in combat. It opens bomb-bay doors, lowers landing wheels, powers the brakes.

If you have a problem in power actuation, carbon dioxide may be your solution. Kidde engineers can help you design cylinders, valves, release mechanisms, etc., to harness this high-pressure gas to the job you want done. Just drop a line to our Research and Development Department.



WALTER KIDDE & COMPANY, INC., 1113 MAIN ST., BELLEVILLE, N.J.



SYMBOL OF SAFETY



The name "IRVIN" on the harness means the chute is produced in an Irvin Factory with over 20 years of experience and skill in chute-making. Literature can be had by school or training executives for the asking. Address Main Office, Buffalo, N. Y.

THE CATERPILLAR CLUB

Founded in 1920. There is only one qualification for a life membership: in an emergency men and women who have saved their lives with Irvin Air Chutes. The word CATERPILLAR and representation of a caterpillar are registered trade-mark features of Irvin Air Chute Co., Inc. We are anxious that the records of the Club be kept as complete as possible in the Club Register and members, upon enrollment, will receive a caterpillar token with the name inscribed thereon. Communicate with our Main Office.

IRVING AIR CHUTE CO., INC.

1670 Jefferson Ave. Buffalo 8, N. Y.

Other factories in United States, Canada and England

IRVIN Air Chutes

SERVING THE UNITED NATIONS' AIR FORCES

MANUFACTURING

Paul Scherer, AiResearch Engineer, Gets NDRC Job

AiResearch Manufacturing Co. announces that Paul A. Scherer, director of research, has been granted an indefinite leave of absence to take over the position of Chief of the Engineering and Transition Office of the National Defense Research Committee.

The National Research Defense Committee, of which J. B. Conant, president of Harvard University is chairman, is one of the units of the Office of Scientific Research and Development which was established by executive order of President Roosevelt three years ago. Its purpose is to coordinate military and civilian scientists and laboratories, bringing their efforts to bear more effectively in developing new implements and methods of war.

Before the war, Scherer acted as consulting engineer on all types of pre-cooling cold storage and air conditioning systems, and it was in this capacity that he served North American Aviation Co. during installation of air conditioning in its plant at Dallas, Tex.



Scherer

Carl Anderson Rejoins Embry-Riddle, Leaving PAA

Embry-Riddle Co., Miami, announces that Carl R. Anderson, who was formerly associated with the company when it was located in Cincinnati, has rejoined the organization as assistant vice president. Anderson has been handling public relations for Pan American Airways in Los Angeles since 1937. In his new position he will coordinate the work of the various promotion departments of the Embry-Riddle School of Aviation. He is a pilot and a member of the "Quiet Birdmen."



Anderson

Glass Plastic Used in Planes

A glass-fibre-reinforced plastic with tensile strength of more than 80,000 pounds per square inch is being used in building American planes, James Slayter, director of research of Owens-Corning Fiberglass Corp., told the industrial minerals division of the American Institute of Mining and Metallurgical Engineers last month. The impact strength of ordinary plastics is about two foot pounds on a standard test, he said, while the new material has shown impact strength resistance of more than 20 foot pounds.

DPC Authorizations

AMERICAN PROPELLER CORP., Toledo, Ohio, for additional equipment in Ohio plant at a cost of about \$900,000, overall commitment of about \$12,400,000.

VEGA AIRCRAFT CORP., Burbank, Calif., for additional facilities at Calif. plant at a cost of about \$175,000, overall commitment of about \$7,250,000.

TUBE TURNS, INC., Louisville, Ky., for additional equipment at Ky. plant at a cost of about \$735,000, overall commitment of about \$7,250,000.

AEROJET ENGINEERING CORP., Pasadena, Calif., for additional plant facilities at a cost of about \$80,000, overall commitment of about \$330,000.

LOCKHEED AIRCRAFT CORP., Burbank, Calif., for additional facilities at California plant at a cost of about \$70,000, overall commitment of about \$6,100,000.

CONSOLIDATED VULTEE AIRCRAFT CORP., San Diego, Calif., for additional plant facilities at a cost of approximately \$450,000, overall commitment of about \$23,300,000.

Stephen B. Mambert Joins Republic Aviation Corp.

Stephen B. Mambert, formerly vice-president of Thomas A. Edison, Inc., has been appointed assistant to Alfred Marchev, president of Republic Aviation Corp. He recently has been engaged in war work at the Kingsbury Ordnance Plant, La Porte, Ind., and was at one time associated with the Vacuum Oil Co. He is a graduate of the College of Engineering at Cornell University where he specialized in manufacturing management.



Mambert

Aviation Stock Averages


DOW-JONES INDUSTRIALS	137.90
DOW-JONES RAILS	35.01
5 AIRCRAFT MFG. CO. STOCKS	28.50
4 MAJOR AIRLINE CO. STOCKS	35.56
7 LESSER AIRLINE CO. STOCKS	12.36
4 LESSER MFG. CO. STOCKS	9.44
20 AVIATION CO. STOCKS	20.45

	Close of business Week of Oct. 15	Week of Oct. 22
DOW-JONES INDUSTRIALS	137.90	138.25
DOW-JONES RAILS	35.01	35.10
5 AIRCRAFT MFG. CO. STOCKS	28.50	28.97
4 MAJOR AIRLINE CO. STOCKS	35.56	35.75
7 LESSER AIRLINE CO. STOCKS	12.36	12.36
4 LESSER MFG. CO. STOCKS	9.44	9.19
20 AVIATION CO. STOCKS	20.45	20.55

Aviation Securities Over the Counter

	Close of Business			
	October 15 Bid	October 15 Asked	October 22 Bid	October 22 Asked
AIRLINES				
All American Aviation	3 1/2	4	3 1/2	4
All American Aviation Pfd. ....	.....	.....	20	24 1/2
American Airlines Pfd.	116	119	116	119
American Export Airlines	31	32	31	32
Braniff	12 1/2	12 1/2	12 1/2	12 1/2
Chicago and Southern Com.	13 1/2	13 1/2	13	13 1/2
Continental Airlines WTS	5 1/2	.....	5	.....
Delta Air	7 1/2	8 1/4	7	8
Inland Airlines	OW	BW	.....	.....
Mid Continent	3 1/2	4 1/4	3 1/2	4 1/4
National	5 1/2	5 1/2	5 1/4	5 1/2
Northeast Airlines	11 1/2	12 1/2	11	12 1/2
Penn Central Airlines Pfd.	6 1/2	6 1/2	6 1/2	6 1/2
	30	31	30	30 1/2
MANUFACTURING				
Aerona	3 1/4	3 1/4	3 1/4	3 1/4
Air Associates Common	OW	.....	OW	.....
Aircraft and Diesel	1 1/2	1 1/2	1 1/2	1 1/2
Aircraft Accessories .....	.....	.....	.....	.....
Airplane and Marine	2 1/2	2 1/2	2 1/2	2 1/2
Airplane Mfg. & Supply .....	.65	.75	.65	.75
Central Airports	1 1/2	1 1/2	1 1/2	1 1/2
Columbia Aircraft Prod.	3 1/2	3 1/2	3 1/2	3 1/2
Continental Aviation	3	3 1/2	3 1/2	4 1/2
Delaware Aircraft Pfd. ....	.....	.....	1 1/2	1 1/2
General Aviation Equip.	1 1/2	2	1 1/2	1 1/2
Globe Aircraft .....	.....	.....	.....	.....
Harlow Aircraft	1 1/4	1 3/4	1 1/4	1 3/4
Harvill Aircraft Common	2 1/4	2 1/2	2 1/4	2 1/2
Pfd. ....	.75	.95	.75	.95
Interstate Aircraft & Eng.	6	6 1/2	6 1/2	7
Jacobs Aircraft	3 1/4	4 1/4	3 1/4	4
Kellett Aircraft	2 1/2	2 1/2	2	2 1/2
Kinner Motors .....	.95	1.05	.95	1.05
Liberty Aircraft	10 1/2	10 1/2	10 1/2	10 1/2
Luscombe	1 1/2	1 1/2	1 1/2	1 1/2
Northrop Aircraft	6	6 1/4	5 1/2	6
Northrop Aircraft WTS	5 1/2	5 1/2	5 1/2	5 1/2
Piper Aircraft Common	13 1/4	14 1/4	13 1/4	14 1/4
Piper Aircraft Pfd. ....	.....	.....	.....	.....
Pittsburgh Aviation Ind. ....	.....	.....	.....	.....
Rohr Aircraft	3 1/2	3 1/2	3 1/2	3 1/2
Standard Aircraft	3 1/2	4 1/2	4	4 1/2
Taylorcraft Common	1 1/2	1 1/2	1 1/2	1 1/2
Taylorcraft Pfd.	4	4 1/2	4	4 1/2
Timm .....	.55	.60	.55	.60
United Aircraft Prod. Pfd.	15 1/2	16 1/2	15 1/2	16 1/2

A *Third Hand* FOR THE PILOT



Simmonds-Hobson Automatic Engine Controls For Greater Efficiency and Engine Protection

COMBAT calls for split-second action. In the heat of battle at constantly changing speeds and altitudes, the warplane pilot has little time for careful adjustment of his engine controls. Modern engines can "take it," but at a sacrifice of their service life.

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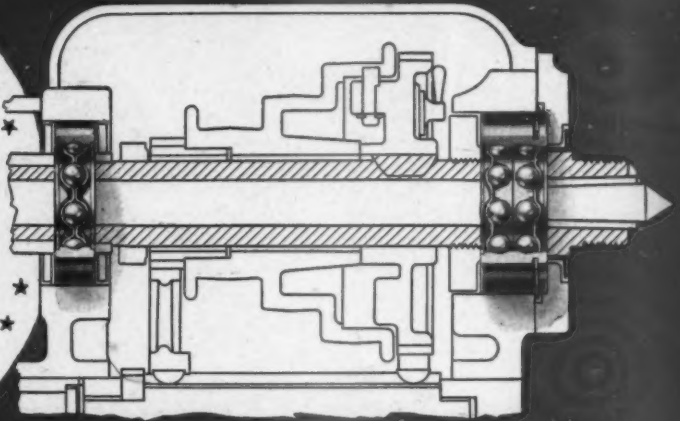
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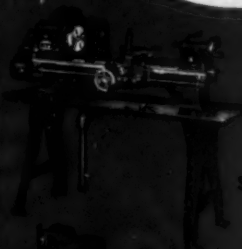
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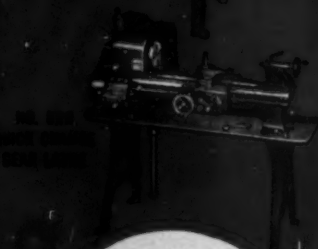
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Bendix Develops New 'Gyro Flux' Compass

A revolutionary type of compass, which will give accurate readings at all times despite violent movements of an airplane and which will operate accurately within less than 5 degrees of the North Pole was unveiled at the Philadelphia Division of Bendix Aviation Corp. last fortnight.



Bendix 'Gyro Flux'

Already in use on bombers, enabling them to find their targets and return home unerringly, the new instrument is known as the "gyro flux gate compass," and is viewed by Bendix engineers as having special significance in connection with future aerial transport across the polar regions. Whereas the old magnetic compasses "go haywire" within 1200 miles of the North Pole, the gyro flux gate functions accurately within a short distance of the pole.

W. A. Reichel, director of engineering, said it is as great an advance over the conventional magnetic compass as that compass was over the lodestone. He said it uses the earth's magnetic field to develop minute electrical impulses which, when amplified, turn the compass indicator. "It will not go off its reading when the plane dives or climbs rapidly, it will not lag or overshoot during a turn and it will not oscillate or hunt back and forth in rough weather." Now in mass production, it is the result of seven years of development at the Eclipse Pioneer Division of Bendix.

An advantage of the new compass is that no "correction card," necessary with magnetic types, is needed because it gives fully corrected readings at all times. "Heart" of the instrument is a triangular set of coils which is kept parallel to the earth's magnetic field at all times by a spinning gyroscope.

"Because it is possible to locate the transmitter at a distance from the indicating dial," Reichel said, "it is possible to find a position for it where it will not be affected by the bombload, armor plate, other metal parts that impair accuracy of the standard compass. Additional indicators are linked to the compass through the Pioneer 'magnesyne' system."

Leading Aviation Stocks

New York Stock Exchange

	Week Ending Oct. 30				Week Ending Nov. 6			
	Sales	High	Low	Net Change	Sales	High	Low	Net Change
American Airlines	3,400	67	63	+1 1/4	3,900	66	61 1/4	-3 1/4
Aviation Corp.	36,000	4 1/4	3 3/4	.....	22,400	4	3 3/4	- 1/4
Beech Aircraft	3,400	12	11	- 3/4	3,800	11 1/4	10	-1 1/4
Bell Aircraft	1,600	13 3/4	13 1/4	+ 3/4	3,700	14 1/4	13 1/4	- 1/4
Bendix Aviation	3,800	36 3/4	34 1/4	.....	5,900	35 3/4	34 1/4	- 1/4
Boeing Airplane	7,800	16 3/4	14 1/4	- 1/4	4,100	14 1/4	14 1/4	- 3/4
Consolidated Vultee	5,200	13 3/4	13 1/4	.....	11,500	13 3/4	11 3/4	-1 1/4
Consolidated Vultee pfd	1,800	21 1/4	20 3/4	- 1/2	1,000	20 3/4	20	- 1/2
Curtiss-Wright	29,700	7 3/4	7 1/4	.....	39,700	7 1/4	7	- 1/4
Curtiss-Wright A	5,800	18 3/4	17 3/4	- 1/4	6,400	18	17	- 1/4
Douglas Aircraft	3,600	62	61 1/4	+ 3/4	9,500	62 1/4	53	-4
Eastern Air Lines	3,300	38	35	+1	2,900	37	34 1/4	-1 1/4
Ex-Cell-O	2,100	23 3/4	23 1/4	- 1/4	2,900	23 3/4	21 3/4	-1 3/4
Grumman Aircraft Eng.	2,200	12 3/4	12 1/4	- 1/4	2,400	12	11 1/4	- 3/4
Hayes Industries	500	7 3/4	7 1/4	- 1/4	1,900	7	6 3/4	- 1/4
Lockheed Aircraft	8,500	17	16 1/4	- 1/4	13,100	16 3/4	14 3/4	-1
National Aviation	600	11 1/4	11 1/4	- 1/4	3,100	11 1/4	11	- 1/4
North American Aviation	10,100	10 3/4	9 3/4	- 3/4	4,700	10	9 3/4	- 1/4
Northwest Airlines	1,000	19	18	+ 3/4	1,400	18	17 1/4	-1 1/4
Pan American Airways	14,000	34 3/4	31 3/4	+1 1/4	14,100	33 3/4	31	-2
Penn Central Airlines	5,100	16 1/4	14 3/4	+ 3/4	2,200	16	14 3/4	-1
Sperry Corp.	7,000	26 1/4	25 3/4	- 1/4	6,700	26 1/4	25 1/4	- 1/4
Thompson Products	2,100	31 1/4	30 3/4	- 1/4	900	30 3/4	30 1/4	- 1/4
Trans & Western Air	3,800	22 3/4	20 3/4	- 1/4	2,800	21 3/4	20	- 1/4
United Air Lines	11,900	27 3/4	25 1/4	+1 1/4	13,800	27 1/4	24 1/4	-2 1/4
United Aircraft	11,400	30 3/4	30	- 1/4	12,000	30 3/4	28 3/4	-1 3/4
United Aircraft pfd	500	104	103 3/4	+ 3/4	500	103 1/4	103	- 1/4
Wright Aero	2,000	93	90	+1 1/4	7,000	92 1/4	90	- 1/4

New York Curb Exchange

	Week Ending Oct. 30				Week Ending Nov. 6			
	Sales	High	Low	Net Change	Sales	High	Low	Net Change
Aero Supply B	1,500	4 1/4	3 3/4	+ 3/4	1,000	4 1/4	4	- 1/4
Air Associates	300	7 3/4	7 1/4	- 1/4	400	7 1/4	7 3/4	+ 1/4
Aircraft Accessories	2,000	3	2 1/4	- 1/4	4,400	2 3/4	2 1/4	- 1/4
Aro Equipment	100	8 3/4	8 1/4	+ 1/4	400	8 3/4	7 3/4	-1 1/4
Bellanca Aircraft	1,300	2 3/4	2 1/4	+ 1/4	400	2 3/4	2 1/4	- 1/4
Breeze Corp.	800	10 3/4	10 1/4	+ 1/4	500	10 3/4	10	- 1/4
Brewster Aero	6,400	4 3/4	4 1/4	.....	8,100	4 3/4	3 3/4	- 1/4
Cessna Aircraft	3,300	6 3/4	6 1/4	- 1/4	3,300	6 3/4	5 3/4	- 1/4
Colonial Airlines	900	8 1/4	8	+ 1/4	900	7 3/4	7 1/4	- 1/4
Fairchild Aviation	800	7 3/4	7 1/4	- 1/4	1,200	7 3/4	7 1/4	- 1/4
Fairchild Eng. & Airplane	2,700	1 1/4	1 1/4	- 1/4	4,000	1 1/4	1 1/4	.....
Irving Air Chute	500	9	8 1/4	+ 3/4	500	8 1/4	8	- 1/4
Republic Aviation	8,900	3 1/4	3 1/4	+ 1/4	8,300	3 1/4	3	- 1/4
Ryan Aero	300	3 1/4	3 1/4	- 1/4	900	3 1/4	3 1/4	- 1/4
Solar Aircraft	700	3 1/4	3 1/4	- 1/4	1,800	3 1/4	3	- 1/4
United Aircraft pfd	1,400	9 1/4	8 3/4	+ 1/4	2,400	9 1/4	8 3/4	- 1/4
Waco Aircraft	300	3 1/4	3 1/4	.....	200	3 1/4	3 1/4	- 1/4
Western Air Lines	1,700	9 3/4	8 3/4	+1 1/4	300	9	9	- 1/4

Charles Marcus, vice-president in charge of engineering, credited invention of the compass to Alfred Stuart, project engineer. Paul Noxon was the designer and other engineers helping to put it in production were John Emerson, Don Smith, Vernon Kimball and Hans Loen. Existence of the compass was revealed because one or more of them have fallen into Axis hands, but Marcus said it would be impossible for the Axis to duplicate it during the war.

Hoosier Aircraft Changes Name

Hoosier Aircraft Co., Inc., of New York, has changed its name to Ballard Aircraft Co., Inc., according to S. M. Revness, president. Revness said there will be no change in the corporate interests or personnel and operations will continue as previously with exception that executive and engineering offices will be located at 331 Madison Avenue. Manufacturing plants are located at Elkhart, Ind., and Arthur-dale, W. Va.

Start C-W Stockholders' Suit

A stockholders' suit against Curtiss-Wright Corp. and its officers and directors for the return of \$2,000,000 to the corporation from an incentive compensation fund went to trial in White Plains, N. Y., last fortnight. The suit was filed by Mrs. Murie Meyers and Sidney Schneiderman of New York City, and named Guy W. Vaughan, C-W president, and 24 other officers and directors as defendants. The complaint alleged that the stockholders approved in April, 1939, a plan for an incentive compensation fund to be set up with 10% of the net earnings in excess of \$3,000,000 after taxes. It was charged that the officers and directors set forth that the fund would not exceed \$70,000, on the basis of 1938 earnings, whereas they knew that earnings would be greatly increased in 1939 and thereafter. The complaint charged that more than \$2,000,000 had gone into the fund and had been, or would be, paid to the officers and employees.

Manufacturing Personnel



Borchardt



Hooker



Christie



Culver



Atkinson



Webb

Arens Controls, Inc., Chicago, announces that **Philip Hooker**, executive assistant manager of the contracts department of Bell Aircraft Corp., has been appointed sales and advertising manager of the company. **Bert Borchardt** has been appointed manager of the West Coast branch of Arens.

John H. Spade has been named assistant treasurer of United Aircraft Corp., and has been assigned to the Sikorsky Aircraft Division.

Elastic Stop Nut Corp. announces appointment of **Luther H. Atkinson** as vice president in charge of sales. He was formerly vice president in charge of marketing for the Weyerhaeuser Sales Co., St. Paul.

Aerco Corp., Hollydale, Calif., announces three changes in its executive staff. **H. Hauffaire** becomes director of industrial relations; **Charles Young** succeeds Hauffaire as personnel director; **Charles Crowther** is named plant superintendent.

Elmer H. Culver has been named director of sales of Henry Valve Co., Chicago. He will direct the sales activities of the company's aviation division.

Pratt and Whitney Aircraft Division of United Aircraft Corp. announces that **Arthur Read Christie** has been named Washington, D. C., representative of the division.

James E. Webb, secretary-treasurer of Sperry Gyroscope Co. has been elected vice president. He will continue to serve as secretary, but will be succeeded as treasurer by **F. W. Kilduff**, assistant treasurer.

W. Kent Wheeler, formerly manager of the manufacturing division of Solar Aircraft Co., has been appointed liaison representative of the manifold manufacturing division of Ryan Aeronautical Co.

Lawrence H. Cooper, former director of field operations of Consolidated Vultee Aircraft Corp. at San Diego, has been appointed manager of the Elizabeth City, N. C., division.

General Motors Corp., Eastern Aircraft Division, announces that **Donald R. Watson**, formerly with Fleetwings Division of Kaiser Cargo, Inc., has been named chief of weights for the division.

Clinton Macauley Takes Job With Fairchild's Publicity Staff; To Resign AWA Post

Fairchild Engine and Airplane Co. announces the appointment of **C. B. F. Macauley**, formerly editor of *Air Tech*, as a member of its public relations staff. He will become editor of the Fairchild house organ *The Pegasus*.



Macauley

Macauley has been an aviation writer for the past 14 years. He was formerly editor of the *Civil Aeronautics Journal*, and managing editor of *Aviation*. He has just finished a book on helicopters, said to be the first complete work devoted to that subject. He is the present treasurer of the Aviation Writers Association, but plans to resign this position soon.

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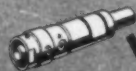
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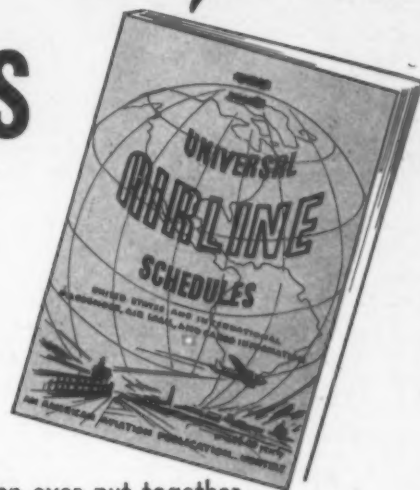
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Army Cancels Timm Glider Contract; 'Fighters Needed'

In line with the West Coast manpower directive to concentrate production on the most vitally needed aircraft, the Army Air Forces Material Command on Oct. 27 announced cancellation of Timm Aircraft Corporation's contract to manufacture CG4A (Troop Carrying) Gliders.

Col. Donald F. Stace, commanding officer of the Western Procurement District, announced that the cancellation means Timm Aircraft facilities will be available for sub-assemblies and parts work on urgent fighting planes.

O. W. Timm, president of the aircraft company, said manufacture would continue on the plastic NZT-1 trainer for the Navy at the firm's Saticoy plant, and manufacture of components would go forward at the Woodley plant.

★ ★



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Incorporations

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BAR HARBOR AIRWAYS, INC. to operate a general airport service, and to take over several airports in Maine. Maj. James B. King, president.

BOYER AIRCRAFT CORP. has been incorporated by E. E. Boyer, Elizabeth L. Boyer, and Paul D. Reece, Cleveland, O.; 500 shares no par.

INTER CITY AIRLINES CO. has been incorporated in Quebec by interests close to Provincial Transport Co., Montreal, with capital stock of \$90,000, divided into \$5 par shares.

LINCOLN AIRCRAFT SCHOOL Inc., Indianapolis, has been incorporated in Indiana by J. G. Arnold, Sam Leach, and Robert McAdams, Jr. with 100 shares of \$100 par value stock listed.

Midwest Industrial Group Urges U. S. Airlines To Enter World Competition

Encouragement of competition in foreign air service by American lines was urged by the Mississippi Valley Association—a strong midcontinent association of industrial, commercial and agricultural interests—at its annual meeting recently. Its resolution said in part:

"We favor the full economic development of airlines in the United States, including feeder lines and intensification of trunk line services. We recognize as a fact that aviation will play a vital part in foreign trade. Our country must necessarily permit, encourage, and support competition in foreign air services on the part of American nationals. This association believes that statutes and regulations impeding ability of Americans to compete equally in foreign trade and travel should be repealed or amended."

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